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ABSTRACT

Effectiveness of the Mobile Field Study Unit's work in environmental education in south-west Queensland during 1979-1980 was evaluated through records kept by the Unit and the Priority Country Area Program (PCAP) office, evaluations by teachers, interviews with teachers and educational administrators, and participant observation of the Unit. The Unit was one of a number of initiatives sponsored by PCAP in an effort to bring more varied experiences to country children in "disadvantaged country areas." During 1979-1980 the Unit provided service to some 1,400 pupils, 75 teachers, and 35 schools each year, at a cost of approximately $90,000 per annum. The majority of informants judged that the Unit had provided a valuable service and that its efforts were well received. In relation to field study facilities, disadvantage previously experienced by the area's children had been effectively overcome. The Unit had been more successful in contributing to the environmental education of pupils than in influencing teachers to make greater use of environmental strategies. In the interests of cost-effectiveness, a reduction in Unit staff will be trialled during 1981, together with plans for increasing the responsibilities of visiting teachers and some decrease in Unit mobility. These changes will need to be carefully monitored. (Author/BRR)

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PRIORITY COUNTRY AREA PROGRAM EVALUATION SERIES: REPORT NO. 9

The Mobile Field Study Unit in South-West Queensland

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March 1981

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SUMMARY

SCOPE OF THE REPORT

This report provides an account of:

- the purpose of the Mobile Field Study Unit (M.F.S.U.)
- the context in which it operates
- the service which it provides
- reactions to that service.

Information for this report was obtained from:

- records kept by the Mobile Field Study Unit and the Priority Country Area Program office
- evaluation sheets completed by teachers
- interviews with teachers and educational administrators
- participant observation of the Unit.

PRINCIPAL FINDINGS

1. The majority of informants judged that the Unit had provided a valuable service to schools in south-west Queensland and that its efforts were well received in the area.

2. In relation to field study facilities, the Unit has effectively overcome the disadvantage previously experienced by children in the South-West Priority Country Area.

3. The Unit has been more successful in contributing to the environmental education of pupils than in influencing teachers to make greater use of environmental strategies.

4. To increase the Unit's impact on the school curriculum, it may be advisable to increase the involvement of participating teachers in Unit programs and for Unit staff to provide follow-up visits to schools and seminars for teachers.

5. During the period under review, the Unit provided a service which directly benefitted some 1400 pupils, 75 teachers and 35 schools each year, at a cost of approximately $90 000 per annum.

6. In the interests of cost-effectiveness, a reduction in Unit staff is being trialled during 1981, together with plans for increasing the responsibilities of visiting teachers and some decrease in Unit mobility. These changes will need to be carefully monitored.

7. Since the present caravan is unlikely to be serviceable beyond the end of 1981, a decision concerning its replacement (which has implications for the future of M.F.S.U. operations) will soon be necessary.

8. Some form of public relations exercise may be desirable to increase parental and community awareness of the value of environmental education for country children.

CHAPTER 1

INTRODUCTION

Purpose of this Report

This report was prepared in response to the expressed need of the State Management Committee of the Priority Country Area Program (P.C.A.P.)* for information about the Mobile Field Study Unit (M.F.S.U.) operating in South-West Queensland. It is number nine in a series of evaluation studies and thus part of the overall evaluation program intended to provide:

- a descriptive portrayal of P.C.A.P. initiatives;
- feedback to P.C.A.P. staff about the services being offered;
- information for persons and committees responsible for deciding P.C.A.P. policies, and
- a measure of accountability to the Schools Commission in particular and to the community in general.

The Evaluation Approach

In common with other P.C.A.P. evaluation studies, the approach on this occasion was much influenced by the above considerations. As a consequence, the evaluation plan was designed to seek answers to the following questions about the M.F.S.U.:

- What is the Unit trying to achieve?
- What is the context in which it operates?
- How does it operate?
- What do these operations cost?
- What are the outcomes of these operations?
- What are the alternatives and issues which face decision makers?

In its quest for answers, the study has attached considerable importance to the perceptions of those most closely involved in the Unit's operations. In reporting such perceptions, the writer has attempted to present a representative sample of the opinions and judgements of others, whilst endeavouring to avoid passing personal judgement upon the main issues.

Evaluation Methods and Procedures

Information for this report was obtained in the following ways:

- from visits to schools in the South West Priority Country Area and discussions with staff and pupils;
- by analysis of the documentation in the P.C.A.P. office;

* A description of this program is provided in Chapter 2.

- from the evaluation sheets completed by teachers;
- from participant observation of the Unit in operation;
- from discussions with M.F.S.U. and other P.C.A.P. staff;
- from discussions with administrators and other staff of the Department of Education;

  and
- from an expert consultant in environmental education.

As far as possible, information obtained from any one source or by any one method has been cross-checked with information from other sources or obtained by other methods. As an additional safeguard against inaccuracy, misinterpretation and reporter bias, relevant sections of the completed report have been discussed with the principal informants.

Because of the urgent need for information upon which to base decisions concerning the Unit's operations during 1981, a preliminary statement of evaluation findings was prepared in November 1980, when data collection had been virtually completed. This statement drew attention to the implications of various alternatives to the pattern of operations then being followed and to certain deficiencies in Unit equipment. Thus at the time of completing this report (March 1981), certain of the deficiencies originally noted had been remedied.

The Purpose of the Mobile Field Study Unit

In his report for 1977, the Chairman of the State P.C.A.P. Committee, C. Connell, summarised the purpose of the M.F.S.U. as follows:

- *to assist teachers in primary and secondary schools to use their local areas as part of their programs;*
- *to assist students to develop attitudes of concern for environmental quality, and an understanding of both the natural and man-made environments.*

Although this brief statement of purpose is expanded in Chapter 4, where the aims and objectives of the Unit are examined in more detail, it will be sufficient for the present to note the two-fold intention that the Unit should assist both teachers and pupils. This duality of purpose is a dominant theme of Unit operations and was clearly recognised as such by members of the Unit staff. The order of priority implied by Connell in placing assistance to teachers first also has significance, since this emphasis is repeated in the detailed statement of objectives mentioned above.

The statement of purpose, together with its priority implications, has been introduced at this stage to provide a general focus for the remainder of the report, and in particular for the contextual data presented in Chapter 2.

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CHAPTER 2

THE CONTEXT OF OPERATIONS

The Mobile Field Study Unit and the Priority Country Area Program

The Mobile Field Study Unit is one of a number of initiatives sponsored by the Priority Country Area Program in Queensland. This Program had its origins in the 1977-79 report of the Schools Commission, which suggested 'that students in country areas may be disadvantaged compared to urban dwellers because of additional factors in the variety of experience and opportunities available to such students'. As a consequence of this concern for the problems of country children, the Commission added a new element to the Disadvantaged Schools Program for 1977, sub-titled 'Disadvantaged Country Areas'. The funding thus made available was intended to finance the piloting of schemes designed to improve the opportunities of children in such areas.

In Queensland, the term Priority Country Area has been used to describe those country areas identified on the basis of guidelines supplied by the Schools Commission and approved by the Commonwealth Minister for Education, on the recommendation of the State Minister for Education. To date, three such areas have been declared – one in the south-west of Queensland, one in central Queensland and one in the north-west of Queensland. Map 1 shows the location and extent of these three areas.

In 1977, a Joint Committee providing wide representation of State and non-State educational interests, was formed by the State Minister for Education to administer the Priority Country Area Program in Queensland. This Joint Committee continued, until the end of 1979, to be responsible for the Program in the two original priority areas of South-West and Central Queensland. The year 1980 commenced with the declaration of the third priority area, in north-west Queensland, and a subsequent re-organisation of the P.C.A.P. Committee structure. The new structure provided for a smaller State Management Committee, composed of representatives from the State and Catholic education systems, and larger Regional Committees in each of the Priority Areas. Membership of the latter committees provides representation for the State and non-State education systems as well as for a variety of community interests and organisations.

Since its inception, the Queensland Priority Country Area Program (P.C.A.P.) has been funded to the extent of approximately $1 million per annum by the Schools Commission, and is presently responsible for over 30 separate projects and employs more than 40 full-time staff.

Administration of the Program is the responsibility of the General Secretary, assisted by a P.C.A.P. Co-Ordinator in each region. Figure 1 provides a diagrammatic representation of the P.C.A.P. administrative structure. The location of the M.F.S.U. within this structure may be noted. Thus, the day to day administration of such initiatives is the responsibility of a regional co-ordinator, who in the South-West area is based at the P.C.A.P. office in Charleville. All P.C.A.P. field staff, including the staff of the Mobile Field Study Unit, are directly responsible to their Regional Co-Ordinator and through him to the Regional Director.

The Area Served by the Unit

The Mobile Field Study Unit operates in the South-West Priority Country Area, which came into being when the nine shires of Baloone, Booringa, Bulloo, Bungil, Murweh, Paroo, Quilpie, Roma and Waroo in south-west Queensland were declared a disadvantaged area by the Commonwealth Minister for Education on 23 March 1977. In his report of December 1977, Connell, then Chairman of the Committee to administer joint programs in Priority Country Areas, explained the choice of area in the following words:

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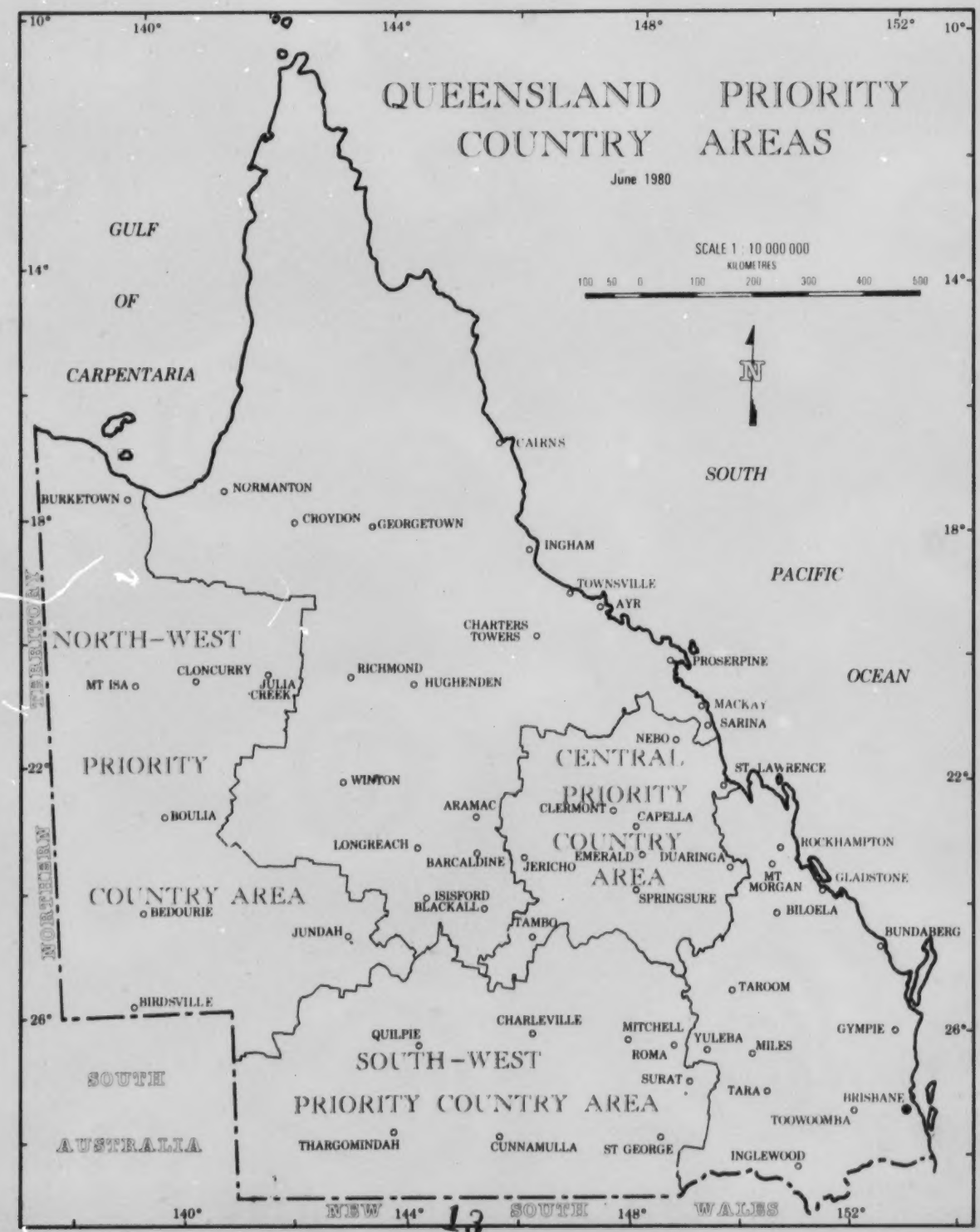
Map 1: Queensland Priority Country Areas



The South-West Priority Country Area was selected mainly because of the social isolation of many of its centres arising out of the vast distances which exist between towns in that part of the State. In addition the area was undergoing economic difficulties because of the depressed nature of its rural industries and this was resulting in a negative growth rate in population.

Map 2 shows the location and extent of the area, the major routeways, and distances between the principal centres. The total area involved exceeds 318 000 km^2 and extends approximately 750 kilometres from east to west and 400 kilometres from north to south. Since 4 November 1977, when the Central Priority Country Area was declared, Tambo Shire has, for some P.C.A.P. purposes, been treated as part of the South-West Priority Country Area. This addition increases the area by over 10 000 square kilometres to approximately 330 000 square kilometres.

The total population of the area (including Tambo Shire) was 27 343 at the time of the 1976 census, giving an overall population density of 0.08 people per square kilometre, compared to 1.2 people per square kilometre for Queensland as a whole. Population densities decreased from 0.6 people per square kilometre for Bungil (including Roma), in the east, to 0.01 people per square kilometre for Bulloo, in the west. The total population of 27 343 represented about 1.3 per cent of the Queensland population of 2 037 197, whereas the total area of 330 000 km^2 represented approximately 19 per cent of the total area of the State. Table 1 shows population data for each shire and for the main service centres. A 9.3 per cent decline in population between 1971 and 1976 may be noted.

Table 1: Shires, Urban Centres and Bounded Localities - South Western Queensland P.C.A.P. - with 200 or more people (1976 census)

Shire or Town	Area km2	Service Centres	Population	
			Centre	Shire
Balonne	31 119	Dirranbandi	587	4580
		St George	2176	
Booringa	27 793	Mitchell	1233	2300
Bulloo	73 620	Thargomindah	(< 200)	521
Bungil	13 302	Injune	431	2111
Murweh	43 905	Augathella	522	
		Charleville	3948	5585
		Morven	237	
Paroo	47 617	Cunnamulla	1805	3021
Quilpie	67 482	Quilpie	728	1440
Roma (Town)	78	Roma	5898	5898
Tambo	10 308	Tambo	424	668
Waroo	13 660	Surat	503	1219
TOTAL	328 884			27 343
			1971 Census	30 142 Decline 9.3%

The pattern of settlement revealed by the foregoing data has a direct influence upon the distribution of schools, which is discussed in the next section of this report, and hence upon the M.F.S.U. activities.

Geographically, the area may be regarded as a broad transition zone between fertile farming lands of the Darling Downs and the desert margins of central Australia. Although the climate becomes increasingly dry and extreme as the western margins of the region are approached, the figures for Charleville may be taken as representative of much of the area:

		January	July	Annual
Average temperatures:	daily maximum	34.6°C	19.4°C	28.0°C
	daily minimum	21.2°C	6.2°C	13.9°C
Rainfall totals		78mm	21mm	515mm

The high daily maximum of 34.6°C in summer and the low daily minimum of 6.2°C in winter may be noted, as well as the diurnal range of some 15°C in both seasons. With regard to rainfall, unreliability is the most significant factor and annual totals during the 10 years 1966 to 1975 ranged from 251mm to 625mm. The intense heat and sunshine of the summer months and the cold nights of winter have clear implications both for camping programs and for staff itineraries involving extensive travel in motor vehicles.

The principal type of land use throughout most of the area is extensive pastoral farming although, toward the eastern margins and around St George, crop farming is increasingly important. Such overall patterns of land use also have implications for environmental programs since local variations in the environment occur within this general context.

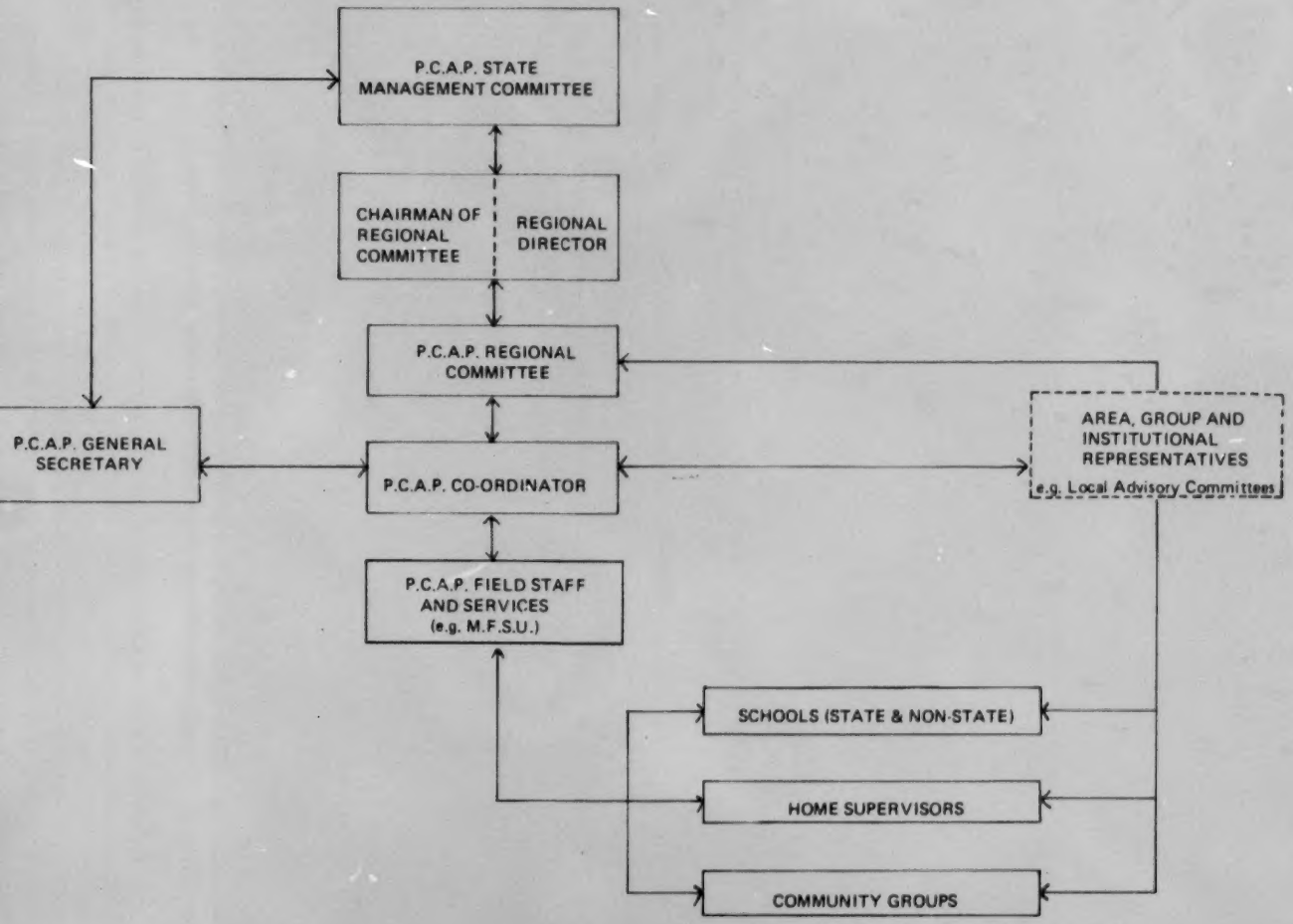
Educational Provisions in the Area Served by the Unit

Details of the enrolments and staffing of the primary and secondary schools in the South-West Priority Country Area (including Tambo Shire) are shown in Appendix A. It will be noted that there were some 34 State and eight non-State schools in the area. Map 3 shows the distribution of these schools. In addition, there were six pre-schools, two special education centres and the School of the Air at Charleville.

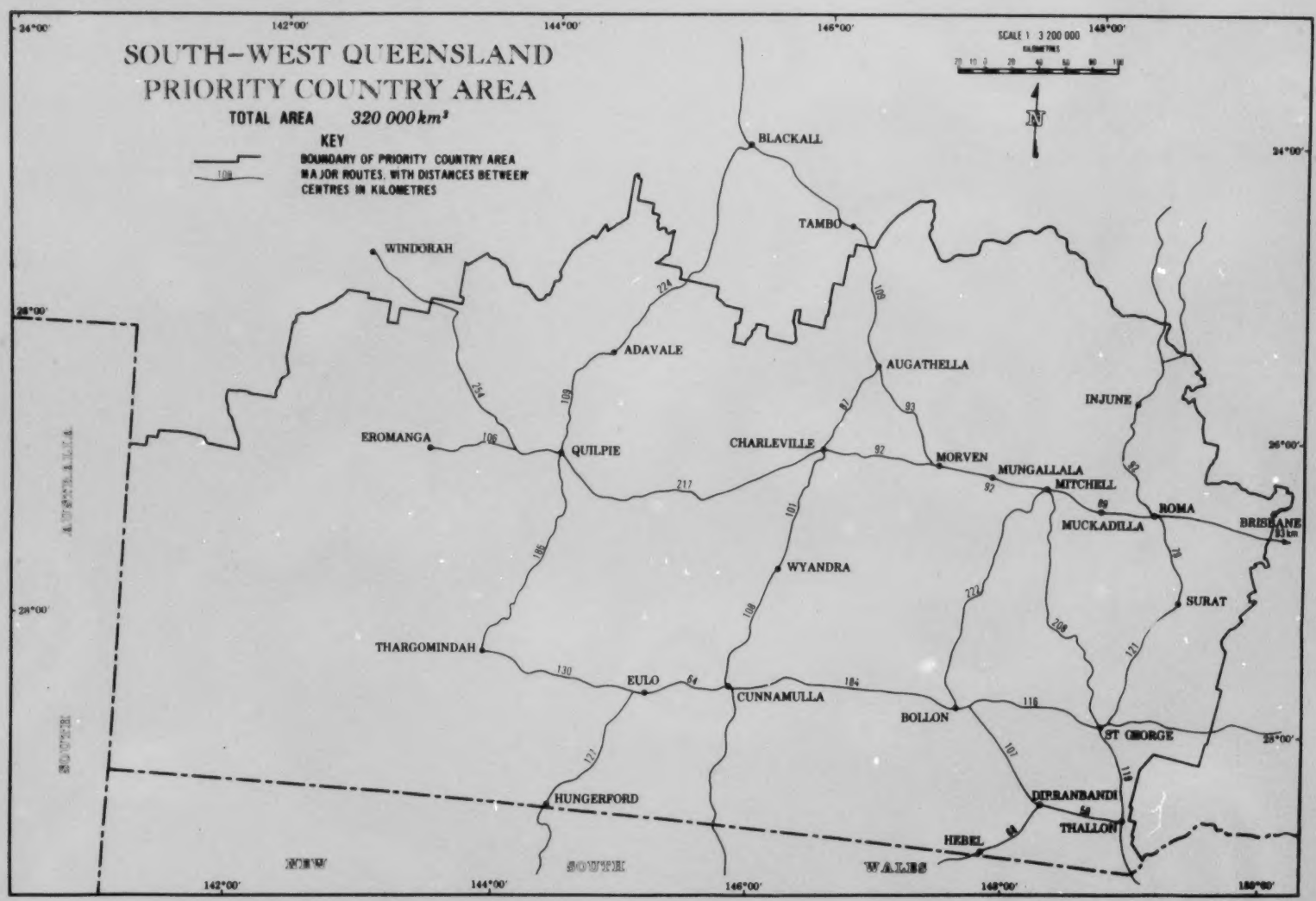
Full high school facilities exist at three centres – Roma, Charleville and St George – and there are schools with secondary departments at Cunnamulla, Dirranbandi, Injune, Mitchell, Surat and Tambo. In the two shires without secondary facilities, Bulloo and Quilpie, provision is made for secondary age students to attend the State primary schools at Thargomindah and Quilpie, where they are enrolled with the Secondary Correspondence School from which they receive papers.

For children unable to attend school, usually because of distance or isolation, the State Department of Education has provided a range of correspondence education facilities. Thus at the end of 1980 there were resident in the South-West Priority Area some 161 pupils enrolled with the Primary Correspondence School and some 40 school age students enrolled with the Secondary Correspondence School. The limited possibilities for incorporating environmental type studies in correspondence education will be readily appreciated.

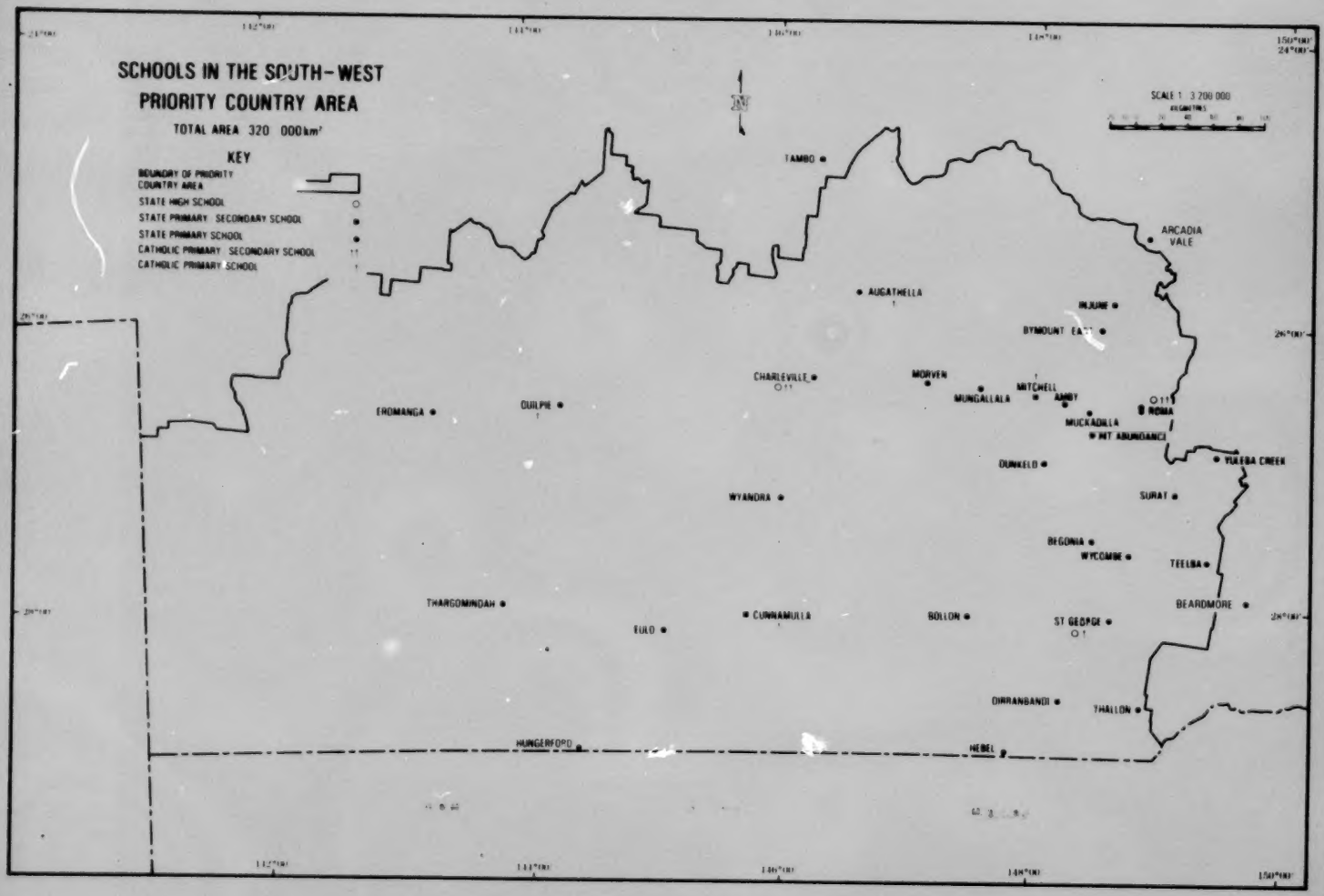
Figure 1: P.C.A.P. Hierarchy of Communication and Responsibility



Map 2: South-West Queensland Priority Country Area



Map 3: Schools in the South-West Priority Country Area



Major P.C.A.P. services in addition to the M.F.S.U. currently available to pupils in the south-west include:

- Mobile Manual Arts Unit;
- Primary Itinerant Teacher Service;
- Instrumental Music Program Unit;
- Country Video Scheme (Roctapus);
- Technical Maintenance Service;
- Vocational Reference Services;
- Resource Kits;
- Provision of Mini-Buses;
- Subsidised Coach;
- Cultural Activities/Tours/Excursions;
- Library Updating Scheme.

The foregoing information about the South-West Priority Country Area, taken together with Appendix A and Map 3, gives some indication of the magnitude of the task facing the Unit in attempting to provide a mobile field study service throughout the area.

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CHAPTER 3

THE MOBILE FIELD STUDY UNIT AND THE CONCEPT OF ENVIRONMENTAL EDUCATION

The Need for Environmental Education and Field Study Centres

Although the notion of environmental education is not new, a widespread upsurge of interest in the concept during the 1960s appears to have been related to an increasing concern, on an international scale, for conservation and the quality of the environment. During the past decade, this burgeoning of interest in environmental education has been reflected, both here and overseas, in the establishment of a variety of committees and programs and in a growing volume of reports.

Of particular relevance in the Australian context is an interim report of the C.D.C. Environmental Education Committee, published in February 1975. Included in that report were the results of a survey conducted by the C.D.C. to determine the major needs for environmental education in Australia. The results of the survey are reproduced in Table 2 below:

Table 2: Results of C.D.C. Survey into Major Areas of Need for Environmental Education

	Area of Need	*Percentage of Interviewees who Specified the Area of Need*
1.	Teacher Education	92
2.	Materials	74
3.	Resource/Information Centres	68
4.	Field Study Centres	68
5.	Co-ordination and Evaluation	26
6.	Community Involvement	26
7.	New Subject	5
8.	Miscellaneous (other needs mentioned only by a few interviewees)	–

It may be noted that the first four 'Areas of Need', which included one entitled 'Field Study Centres', were identified by over 60 per cent of the interviewees. The report indicated that both pre-service and in-service needs were specified in the area designated 'Teacher Education' and that the most commonly specified need in the area of 'Materials' was for local study materials. It is also of interest that most interviewees saw environmental education as a part of every subject in the curriculum and that only 5 per cent saw the need for a 'New Subject'.

Two earlier reports also included specific reference to the need for field study centres:

- the Report of the House of Representatives Select Committee on Wildlife Conservation (1972) suggested that field study centres were 'essential elements in the educational system'.

- the Report of the Committee of Enquiry into the National Estate (1974) advocated the provision of assistance to the field study centre movement.

The Aims of Environmental Education

Lucas (1977) suggested that there were three primary ways of interpreting 'environmental education':

- 'education *about* the environment;
- education *for* the (preservation of the) environment;
- education *in* the environment'.

After recognising that a reasonable definition of environmental education might incorporate any or all of these interpretations, he proceeded to argue that the first two of the primary interpretations were distinguished by implicit goals, whereas the third described a pedagogical technique.

In Queensland, the Department of Education has encouraged an approach where an emphasis upon education *for* the environment also incorporates education *about* and education *in* the environment. A formal statement of the aims of environmental education was published in the Education Office Gazette for July 1976:

(1) To develop in pupils an understanding of how man is using and misusing his resources.

(2) To introduce the pupil to his local cultural and natural environments, past and present, and help him to realise that he is part of them.

(3) To provide an opportunity for pupils to develop field skills through environmental problem solving.

(4) To provide an opportunity for pupils to develop social and physical skills through adventure and challenge.

(5) To assist pupils to develop and review attitudes, values and sensitivities conducive to enjoyment of, concern for, and wise use of the environment.

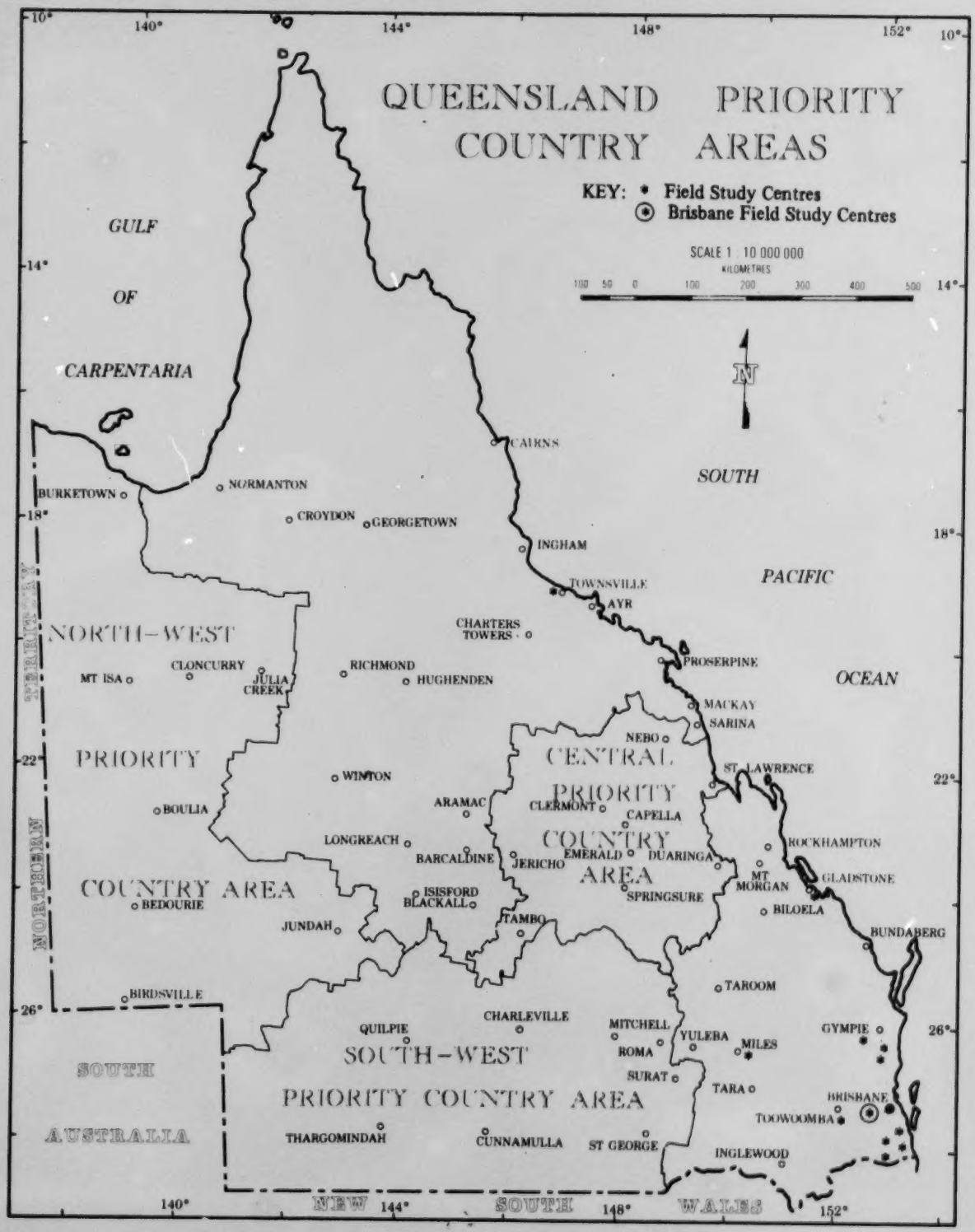
(6) To assist pupils to develop a realisation that the solution of environmental problems often lies in group and political action.

This statement is of interest, not only because it presents such a comprehensive view of the purposes of environmental education, but also because of its direct influence upon the development of the Mobile Field Study Unit, which originated as a departmental proposal (see Chapter 4).

Environmental Education and Field Study Centres in Queensland

During the past decade, the Department of Education has been responsble for a number of initiatives designed to further the development of environmental education in Queensland. Thus, recognising the importance of developing a coherent policy in this field, the Department established a Co-ordinating Committee on Environmental Education as a standing committee to co-ordinate activities within the Department, and to be responsible to the Director General of Education for all matters pertaining to environmental education.

Map 4: Distribution of Field Study Facilities



Based upon the recommendations of a number of committees and reports, Departmental policy has incorporated as one of its aims the development of a network of Field Study Centres to service schools in the State. The first field study centre at Jacobs Well was opened in 1974, and by 1980 there were 14 fixed centres offering field study facilities:

Amaroo Field Study Centre, Kleinton
Boyne Island Field Study Centre, via Gladstone
Bunyaville Field Study Centre, Brisbane
Columboola Field Study Centre, Columboola
Fortitude Valley Field Study Centre, Brisbane
Jacobs Well Field Study Centre, Beenleigh
Maroon Outdoor Education Centre, Boonah
Mary River Field Study Centre, Goomeri
Mt Coot-tha Botanic Gardens Education Centre, Brisbane
Numinbah Valley Field Study Centre, via Nerang
Stanley River Field Study Centre, Hazeldean, via Kilcoy
Sunday Creek Field Study Centre, Maleny
Tallebudgera Camp School, North Palm Beach
Townsville Field Study Centre, Vincent.

The distribution of these centres is shown in Map 4. The concentration of centres in the more densely populated coastal areas of the State is apparent, with none located west of Miles. In particular, the absence of any fixed centres in the area served by the Mobile Field Study Unit may be noted.

The Department of Education has encouraged environmental education in a number of ways. Firstly, with the help of an Innovations Grant from the Schools Commission, a team of four teachers with specialist skills in environmental education was established within the Curriculum Branch to survey areas around high schools and produce resource materials in the form of teaching aids and materials. The perceived need for such materials was, of course, revealed by the C.D.C. survey reported earlier. Secondly, workshop kits, consisting of an information guide, ecological slide packages and sets of identification cards, have been produced by the Curriculum Branch for the use of primary teachers planning visits to Jacobs Well or Stanley River Field Study Centres.

Other provisions for environmental education within the Department have included:

(a) Agricultural Project Clubs in primary schools to provide opportunities for an integrated approach to environmental studies through activities such as animal and plant husbandry, habitat studies and land use surveys.

(b) School Camping Programs which offer scope for environmental studies, social development and adventure activities.

(c) School based environmental study sites and facilities which have been developed at school level sometimes using funds supplied by Schools Commission Innovations Grants.

Other options available to schools interested in environmental education are provided by the Brisbane Botanic Gardens, the Queensland Museum and the National Parks and Wildlife Service all of which have programs catering for children of school age.

Amongst the various developments in environmental education at the tertiary level, the introduction of a diploma course in 'Outdoor Education' at Kelvin Grove College of Advanced Education appears to have had the most direct impact upon the Mobile Field Study Unit through the appointment of one of its graduates as Teacher-in-Charge of the Unit at the beginning of 1979.

Hence, it appears that the value of environmental education in general, and of field study centres in particular, has now become widely recognised. Despite the significant progress made in the sphere of environmental education in Queensland, however, a lack of field study facilities in country areas has been noted. Recognition of this inequality of educational opportunity led to the development of the M.F.S.U. concept, as described in the next chapter.

CHAPTER 4

THE CONCEPT OF THE MOBILE FIELD STUDY UNIT

Origins and Rationale of the Unit

The concept of a mobile field study centre for the South-West Region was first documented in a policy statement on the proposed development of departmental field study centres, adopted in principle by the Environmental Education Co-ordinating Committee on 4 September 1975. Following this, staff of the Agricultural Project Club Branch developed a detailed proposal for a mobile centre. This proposal received the formal support of the Environmental Education Co-ordinating Committee on 30 November 1976. At that stage it was intended that the proposal would form the subject of an application to the Schools Commission for a Systems Level Innovations Grant. Then, during 1977, it was recognised that the proposal might form a suitable initiative for the newly introduced Priority Country Area Program. Subsequent acceptance of the proposal by the P.C.A.P. Joint Committee on 19 April 1977 was followed by the necessary departmental and Cabinet approval and the Mobile Field Study Unit commenced operations in September 1977.

Thus it transpired that the P.C.A.P. Unit had its origins in a proposal developed by officers of the Queensland Department of Education, who were also largely responsible for the planning and implementation of the scheme in its early stages. In that original proposal, the case for a mobile centre was argued in the following terms:

> *Existing Field Study Centres and others being planned cater for the more densely populated coastal plain and hinterland fringes of Queensland. Though these have been located in Educational Regions at fixed localities, they offer a choice of habitats and activities. The inland environments offer similar opportunities for study of natural and man-made environments, but, because of their unique and often harsh nature, they present greater challenges. Furthermore, teachers in these more remote areas are often very young and enthusiastic, but are often inexperienced, and welcome any assistance that can be offered in structuring activities.*
>
> *The very remoteness of inland Queensland precludes the establishment of viable fixed centres because of excessive transport costs. Therefore, this proposed Mobile Field Study Centre will be designed to assist teachers and students in remote areas to use the potentialities of their areas for environmental education needs.*

Implicit in this argument is the concept of equality of educational opportunity, with the mobile centre being intended to make available to country teachers and students those facilities already available through fixed centres to teachers and students in more populous areas of the State. In this attempt to extend equality of opportunity in environmental education to country children, the proposal was in clear accord with the stated policies of the Schools Commission and with its intentions in funding the Disadvantaged Country Area Program.

Also implicit in the argument is the view of the mobile centre as a means of extending the type of service provided by the Department's fixed centres into the more remote areas. This view of the centre, combined with the departmental origins of the proposal, has resulted in a high and continuing level of departmental interest in, influence upon and support for, the operations and program of the P.C.A.P. Unit. As a consequence, the P.C.A.P. Unit has been able to draw heavily upon the experience gained in the operation of fixed centres and thus concentrate upon the adaptation of previously tested strategies to the mobile situation.

Aims and Objectives of the Unit

The original submission contained a detailed statement of both short- and long-term objectives, which were in close accord with the Department's published list of the general aims of environmental education:

The long-term objectives of such a centre are:

(1) To assist teachers in primary and secondary schools in south-western Queensland to determine the potentialities of their local areas for structuring activities suited to their educational programs.

(2) To encourage teachers to develop materials and to structure activities based upon the environmental aspects of the area.

(3) To develop an understanding of the component parts of the natural and man-made environments, their interactions and man's interdependence with them.

(4) To heighten the awareness that man can manipulate certain components of the environment for good or for bad.

(5) To assist students to develop attitudes of concern for environmental quality, and to become responsible members of the world they are shaping and which is shaping them.

(6) To develop feelings of well-being with nature.

The short-term objectives of such a centre are:

(1) To provide a mobile base for day and overnight excursions in environmental studies for schools in the western areas of the Darling Downs Region and for all of the South-Western Region. *

(2) To foster, by providing better facilities, interest in field studies in the local area.

(3) To offer an integrated, multi-discipline program of instruction, and activities suited to the environments used.

(4) To develop field skills through activities in the local environment and to develop social and physical skills through adventure and challenge.

(5) To promote the development of local field studies by encouraging projects in nature trails, environmental areas, research usage, habitat studies, environmental problem solving.

It may be noted that the objectives incorporated the two-fold purpose of supplying a form of practical assistance to country teachers as well as providing direct experience in environmental education for students. It is also relevant that the objectives retained the broad and comprehensive view of environmental education, explicit in the departmental aims.

The Mobile Unit

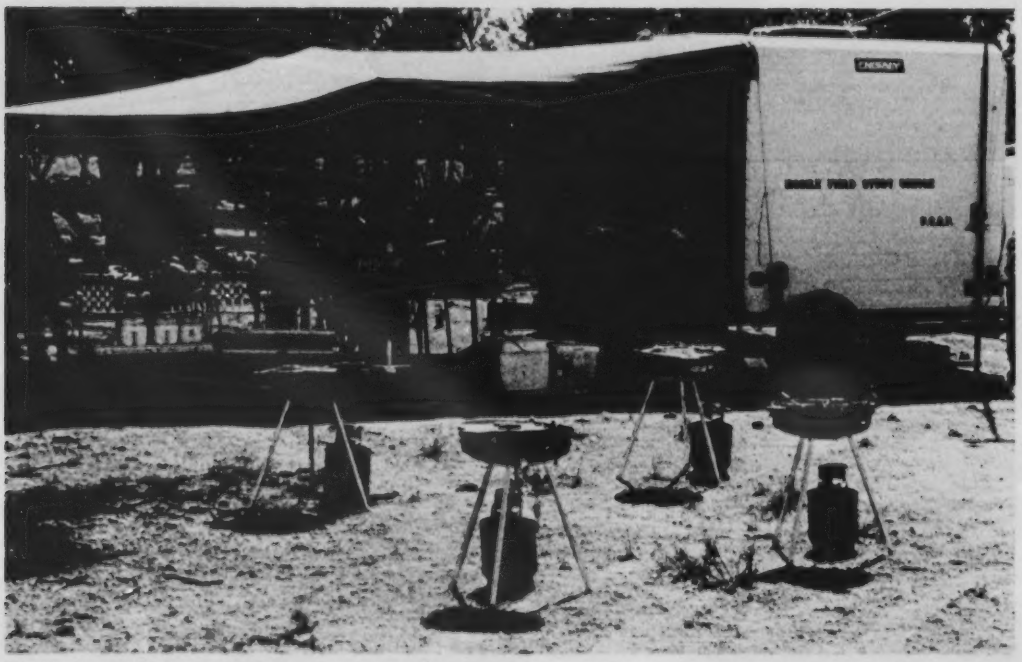
The mobile unit consists essentially of a headquarters caravan and a storage trailer, each towed by a four-wheel-drive Landcruiser.

*When the project was adopted as a P.C.A.P. initiative the area to be served became that of the South-West Priority Country Area.

The original custom-built caravan, which is still in use, measures 4880 mm by 2440 mm and is equipped with tandem 410 mm wheels. It is of aluminium sheet construction and fitted with extra galvanised-iron stone protection plates, water tanks of 270 litre capacity and an electric pressure pump for supplying water to an internal sink and to an external recess point for drinking water. The front half of the van, which is used for staff conferences and workshops, is fitted with a table, seating, a desk, an enclosed bookcase and overhead storage cupboards. The rear section, which is separated from the staff section by a concertina-type folding door, is equipped with two 200 litre gas refrigerators for food storage, a work bench, a sink and storage cupboards. A plan of the caravan is provided in Appendix B. The caravan is now over three years old and its useful life is not expected to extend beyond the end of 1981.

During 1980 a caravan annexe, measuring 5 m by 6 m was supplied to the Unit to provide a multi-purpose covered area. This annexe is equipped with a single wall which can be fitted to windward in the event of rough weather. The Unit staff judge the annexe to be a great improvement, particularly in terms of ease and speed of erection, on the tarpaulin previously used for shade. The tarpaulin now provides a useful ground cover for some pupil activities.

The original trailer, with a single axle, proved insufficiently robust and slightly too small for the Unit's needs. After numerous repairs, it was finally replaced by a larger, twin-axle model in 1980, which has proved much more satisfactory. The trailer is partitioned to carry portable toilets, tents, and other camping gear. A plan of the redesigned trailer is provided in Appendix C.



The Headquarters Caravan and Annexe

Here it may be noted that P.C.A.P. experience, gained from both the Mobile Field Study Unit and the Mobile Classroom (See Report No. 4 in the P.C.A.P. Evaluation Series), indicates the unsuitability of pop-rivets for fastening mobile structures touring interior areas of Queensland. The Support Officer has spent much time replacing these rivets with self-tapping screws in the former Unit.

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When operations first commenced in 1977, the Unit was provided with a powerful four-wheel drive vehicle to tow the caravan and a large station wagon to tow the trailer. Although the latter vehicle proved fast and comfortable for pre-visits to schools, it was less well-suited to towing the trailer over the unmade roads and tracks leading to many of the camp sites. Consequently, when it became due for replacement in 1979, a second four-wheel drive vehicle was obtained. In addition to towing the caravan and the trailer, the two Landcruisers also carry lights, stores and other fragile gear when moving camp and provide transport for pupils during school visits. Both Landcruisers are fitted with heavy duty roof racks to provide extra carrying capacity. The long-wheel-base Landcruisers have proved well-suited to the needs of the Unit, and Unit staff consider the present combination of one with a petrol engine and one with a diesel engine to be ideal. With existing fuel prices, the diesel engine is more economical and has proved satisfactory for towing the new trailer. At the same time, the livelier performance of the petrol engine is useful both for towing the caravan and for making pre-visits to schools.

In recognition of the climatic conditions in which the Unit operates, the P.C.A.P. State Committee has approved, in principle, the air-conditioning of both the existing vehicles as funds become available.

Equipment and Materials

The Unit has been supplied with an extensive range of educational, camping and general equipment. The educational equipment includes tape recorders, cameras, binoculars, hand lenses, compasses, specimen nets, a five-inch astronomical telescope, a microscope, a selection of other scientific equipment and a library of reference books and resource materials. Camping equipment includes a 3 K.V.A. portable generator, gas barbecues, gas lights, first aid kits, portable toilets, axes, mattocks, spades, portable wash basins, air beds, bed stretchers, and sufficient tents to accommodate visiting schools as well as Unit staff. General equipment includes tool sets, a tow rope, a hydraulic jack and a range of miscellaneous items.

With continual use and transportation, wear and tear on equipment is relatively high. Provision is consequently made for the annual servicing of major items of equipment such as the telescope and an annual funding is allowed for the replacement of equipment as this becomes necessary. This funding also makes limited provision for the ordering of additional materials or equipment required by Unit staff. Thus, at the time of writing, it is planned to replace the six portable toilets, which have not proved particularly satisfactory, with a more suitable model. By making possible the prompt repair and regular maintenance of equipment the role of the Unit Support Officer appears to have prolonged the life of many items in these conditions of harsh usage.

Staffing the Mobile Field Study Unit

The Unit commenced operations in 1977 with a staff of four teachers and a Unit Support Officer. When two leading members of the original team, the teacher-in-charge and his wife, transferred to another posting at the end of 1978, it was decided, on the basis of their experience, to reduce the staffing of the Unit to three teachers and a Support Officer. This reduced level of staffing was in operation during the period reviewed in the present report.

The Teacher-in-Charge of the new team had, in addition to a Diploma of Teaching, recently completed a course at Kelvin Grove College of Advanced Education to qualify for the Graduate Diploma in Outdoor Education. Of his two colleagues, one was a recently qualified secondary science teacher who had worked with the previous team during 1978 and the other was a qualified primary teacher with previous field centre experience. All three teachers were young and chosen not only for their qualifications and experience but also for their enthusiasm and interest in outdoor education. Prior to commencing field operations, the new team underwent a period of orientation which included briefings from the Chairman of the Co-ordinating Committee in Environmental Education and senior P.C.A.P. staff, a visit to the Jacobs Well Field Study Centre and two weeks at the Amaroo Field Study Centre.

The Unit Support Officer's responsibilities include the maintenance and repair of equipment, assisting with establishment and dismantling activities at each camp site and the ordering, transport and delivery of stores. During school camps he performs a variety of duties such as assisting with the cooking and other camping arrangements as well as fulfilling the role of teacher aide when appropriate. Unit Support Officers are expected to possess previous camping experience, a range of handyman skills, a current driving licence, the ability to get on with children and an enthusiasm for outdoor living.

On the basis of their experience during 1979 and 1980, members of the Unit team judged that a staff of three teachers and a Support Officer was well-suited to the level and pattern of operations which they had been providing. There was general consensus that any reduction in staffing would need to be accompanied by some reduction in work load if operational effectiveness was to be maintained and the over-extension of staff avoided. Also, in view of the range and nature of routine chores to be performed at each camp site, particularly those such as emptying toilets, it may be necessary to retain the position of Unit Support Officer. If, however, such difficulties are not insurmountable, it may be worth considering, in view of the reduction in staffing mentioned below, whether a staff of three teachers is preferable to a staff of two teachers and one Unit Support Officer. In this connection, it may be relevant that a Unit Support Officer is marginally more expensive, in terms of salary, than a newly qualified teacher.

Towards the end of 1980, the Teacher-in-Charge resigned his position to take up an alternative post and his two colleagues requested transfers to other positions. This necessitated a complete change of teaching staff, with consequent problems of continuity. In this connection it may be noted that, in view of the demanding nature of the duties, team members considered two years to be the maximum period that staff members should be expected to serve with the Unit. It is of interest that this period coincides with P.C.A.P. policy relating to other itinerant teacher positions.

For 1981, the level of staffing has been reduced by one teacher and efforts are planned to reduce work load through a decrease in the number of camp sites, together with an increased sharing of responsibility with visiting teachers. Further references to staffing requirements appear in later sections of this report.

The new Teacher-in-Charge has had several years teaching experience in South-West Queensland, previous contact with the Unit as a visiting teacher and has a strong interest in the position. His colleague is a newly qualified primary teacher with an interest in outdoor education. Towards the end of 1980, she accompanied the General Secretary on a familiarisation tour of the south-west, during which she was able to observe the Unit in action. In addition, both members of the new team were able to visit the P.C.A.P. Brisbane office for discussions with headquarters staff during the 1980/81 end-of-year holiday, although no further orientation experiences were provided on this occasion.

Because school groups visiting the Unit usually include boys and girls, it has been the policy to ensure that the team includes at least one member of each sex.

CHAPTER 5

THE MOBILE FIELD STUDY UNIT IN OPERATION

Bases and Itineraries

During 1977 and 1978, the Unit operated solely from its home base at Roma, where the support services available through the South-West Regional Office are also located. On the basis of this experience, it was decided to use Charleville and St George as additional operational bases to minimise travel as far as possible. Thus, in 1980 for example, the Unit operated out of Charleville, St George and Roma during terms one, two and three respectively. The distribution of schools visited from each base is shown in Map 5. This arrangement appears to have been effective in reducing both the distance travelled and the number of nights away from base, although the need for temporary staff accommodation at each centre has sometimes caused problems. Despite the periodic disruption caused by the rotation of bases, Unit staff were generally agreed that this arrangement was preferable to that previously in use. Nevertheless, it should be noted that during 1980, even with the rationalisation of travel, the average distance covered by a Unit vehicle during a working month was 2000 km and the average distance travelled to schools out of Charleville was 270 kilometres.

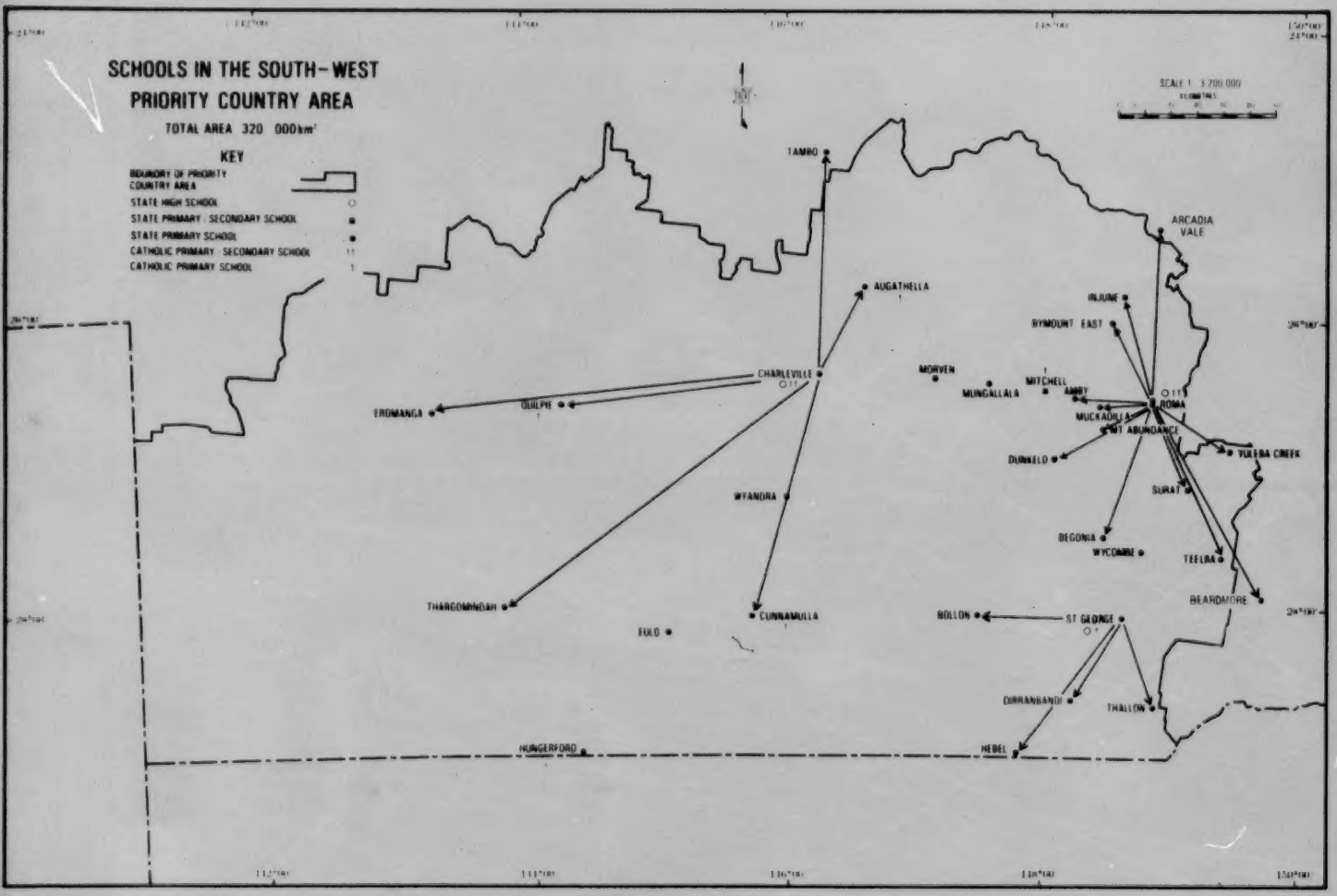
Itineraries are usually arranged so that a different school, or pair of small schools, is serviced by the Unit each week. To allow time for travelling, establishing and striking camp, preparation, administration and planning, contact time is normally limited to the Tuesday, Wednesday and Thursday of each week. The three days contact time may take the form of separate day excursions, overnight camps, or a mixture of both.

Camp sites have been chosen normally for their proximity to visiting schools as well as for their general suitability. Although this has frequently meant moving to a new site each week, Unit staff judged that there were advantages in demonstrating activities in the school's local environment as well as in minimising travel demands on staff and pupils. On occasions, by agreement with schools, this policy has been reversed and camps have been organised in areas contrasting with the school's local environment, such as the Carnarvon National Park or the Columboola Field Centre.

Operations out of each base have normally been planned at least one term in advance and, following the finalisation of itineraries, preliminary notification is sent to the schools concerned. Papers accompanying this notification have been carefully designed to provide detailed information about the Unit, the types of program available and the various activities which can be offered. At this stage, schools are asked to complete a 'Camp Acceptance Form', an example of which is provided in Appendix D. The choice between three single day excursions, a single day excursion with a two day camp and a three day camp should be noted. Following acceptance and choice of program type by the school, a pre-visit is arranged during which a member of the Unit staff visits the school to discuss with teachers the activities to be offered and to ensure that documentation relating to Unit policy and other requirements has been read and understood. A copy of the list of work programs supplied to schools to assist teachers in their choice of activities appears in Appendix E.

To assist in the process of self-evaluation, the team operating the Unit during 1979 and 1980 has continuously sought feedback from visiting teachers. For this purpose the staff has used the 'Staff Evaluation Sheet' (Appendix F), which was designed in consultation with staff at the Kelvin Grove College of Advanced Education. Chapter 6 provides analysis of the replies received from teachers.

Map 5: Schools Visited From Each MFSU Base During 1980



Extent of Operations

An examination of records maintained by the original team revealed that during 1978, operating from 25 different locations, the Unit organised 28 day trips and 18 camps for over 1200 pupils from 27 schools. The 27 schools included two from the Central Priority Country Area and two from New South Wales and the remaining 23 represented some 61 per cent of the schools in the South-West Priority Country Area. Included amongst the participating pupils were some nine from Primary Correspondence School, resident in the area. The records also revealed that the average number of pupils involved in each day trip was 27 and the average in each camp was seventeen. Over the whole year, the Unit averaged three weeks in the field for each week at the Roma base and achieved a total of 66 contact days, excluding assistance provided at Music Camps organised as part of the P.C.A.P. Instrumental Music Program (See Report No. 8 in the P.C.A.P. Evaluation Series).

A similar analysis of the Unit's records for 1979 and 1980 produced the figures relating to day trips and camps shown in Table 3. The relatively low figures for Term 1, 1979, reflect the changeover of staff which delayed the start of the first itinerary until April. Despite this late start, the Unit achieved a total of 65 contact days with schools during the year. In addition, the Unit was heavily involved in the two music camps, each of five days duration, organised by the P.C.A.P. Instrumental Music Program Unit. At these music camps, the M.F.S.U. not only provides expert assistance with camp organisation, but also involves all students in a varied program of environmental education. On average, each pupil would participate in one hour of environmental activities, similar in type to those normally offered by the Unit (see Appendix E), during each of the five days of the camp.

Table 3: Numbers of Day Trips and Camps Provided During 1979 and Terms One and Two 1980

		Primary			Secondary			
Year	Term	Day Trip	Two Day Camp	Three Day Camp	Day Trip	Two Day Camp	Three Day Camp	Totals
1979	1	1 (1)	2 (4)			1 (2)		4 (7)
	2	5 (5)	3 (6)	2 (6)	2 (2)	1 (2)		13 (21)
	3	4 (4)	6(12)	6(18)	1 (1)	1 (2)		18 (37)
1980	1	5 (5)	6(12)	1 (3)	1 (1)	3 (6)		16 (27)
	2	10(10)	4 (8)	1 (3)	4 (4)			19 (25)
TOTALS		25(25)	21(42)	10(30)	8 (8)	6(12)		70(117)

N.B. Figures in brackets refer to the number of contact days.

From the figures in Table 3, it can be calculated that 72 per cent of contact days were spent in camp programs and that 83 per cent of contact days were devoted to primary school pupils. Primary pupils made up 74 per cent of the school population shown in Appendix A.

Further analysis of the Unit's records produced the figures shown in Table 4, concerning the number of schools, teachers and pupils receiving the Unit's services. It should be noted that the figure of 1565 primary pupils included 36 pupils of the Primary Correspondence School and that in addition to the 82 primary teachers, eight governesses also participated in the Unit's program.

Table 4: Number of Schools, Teachers and Pupils Receiving the Unit's Services During 1979 and Terms One and Two 1980

		Primary			Secondary		
Year	Term	Schools	Teachers	Pupils	Schools	Teachers	Pupils
1979	1	4 (0)	5 (0)	63 (0)	1 (0)	5 (0)	27 (0)
	2	9 (1)	13 (1)	360 (33)	2 (1)	5 (2)	140(60)
	3	14 (2)	24 (6)	385(123)	1 (0)	4 (0)	81 (0)
1980	1	7 (3)	20 (7)	337(138)	2 (0)	9 (0)	93 (0)
	2	7 (1)	20 (4)	420(138)	1 (0)	4 (0)	106 (0)
TOTALS		41 (7)	82(18)	1565(432)	7 (1)	27 (2)	447(60)
% TARGET POPULATION		108(100)	39(47)	40 (52)	175(100)	22(19)	33(51)

N.B. Figures in brackets refer to the numbers from non-State schools included in the totals.

It will be observed that the final line of this table shows the percentage of the target population represented by the totals in the line above. On the basis of these figures, it appears that each school could expect a visit approximately once every eighteen months and that during the same period some 40 per cent of primary pupils and teachers could participate in the Unit's program. For secondary classes, the figures would be 20 per cent of teachers and 30 per cent of pupils. Overall, pupils and teachers in non-State schools appear to have received a proportional share of the Unit's services.

The proportion of time on itinerary compared to that spent at base has averaged between 75 and 80 per cent of the total number of working weeks. This is very similar to the figures achieved by the Mobile Classroom (see Report Number 4 in the P.C.A.P. Evaluation Series) and slightly higher than the 65 to 70 per cent achieved by itinerant teachers (see Report No. 1 in the P.C.A.P. Evaluation Series).

Programs and Activities

Included in the documentation sent to schools at the pre-visit stage are examples of a typical program for a three day camp and for a day excursion. A copy of these sample programs appears in Appendix G. These programs have been developed on the basis of both practical experience and the feedback received from teachers by way of the evaluation sheets mentioned previously. The tight schedules represent an attempt to make the maximum use of available time. It will be noted that during camps a full program of activities occupies both pupils and staff from 6.00am until 9.00pm, and that formal activities including 'bird watch' and 'night activity' total approximately twenty hours during a three day camp program.

In general, it has been the practice for the Unit staff to take complete responsibility for conducting all formal activities whereas prime responsibility for other activities such as food preparation and eating, has rested with visiting teachers. Notwithstanding this general division of responsibility, members of the Unit staff were always available for advice and assistance, and provided help with the preparation of meals on a rostered basis. For these reasons, combined with those of economy, all members of the Unit staff occupy tent accommodation at camp sites during school visits.

Starting the Day with a 6.00 a.m. Bird Watch

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Since the number of pupils participating in overnight camps is normally restricted to a maximum of 30, it has been the usual practice to divide the pupils into two groups for the purpose of formal activities. This has had the advantage, not only of producing groups of manageable size, but also of releasing the third member of the Unit teaching staff for other duties such as preparation and planning. During day excursions, staff ratios are much more variable and, particularly where schools are anxious to involve as many pupils as possible, each member of the Unit staff may take a different class, assisted by the class teacher.

As previously indicated, selection of the individual activities to be offered during each overnight camp or day excursion is normally finalised by participating teachers in discussion with Unit staff, at a pre-visit meeting, using the list of activities in Appendix E. A careful analysis of the programs implemented during 1979 and 1980 revealed the information about the balance of activities which is presented in Table 5. This table shows the percentage of occasions when a particular category of activity (see Appendix E) was offered to a school group. Also shown, in brackets, is the approximate percentage of formal contact time devoted to each category.

It will be noted that science, mathematics and general activities (see page 32 for a listing of this category) were most common, with activities in each of these categories appearing in 90 per cent or more of the programs. Next came activities in the categories of language arts and night activities which appeared in approximately 50 per cent of the programs. The figures further reveal that all camp programs included night activities, which were also occasionally provided at the end of a day excursion.

In terms of the overall allocation of time, Table 5 reveals that approximately 80 per cent of formal contact time was shared by general activities, science and mathematics, leaving only 20 per cent of the time for the other five categories. Clearly, categories such as rocks, soils and minerals, social studies and art received relatively little emphasis in terms of time.

A comparison of the figures for each term reveals only limited changes in the balance of programs during the period under review. Overall tendencies appear to include a slight increase in the time devoted to mathematics and a slight decrease in the time devoted to art and social science. Term 1, 1979, was

somewhat atypical, presumably because this represented a short period of operations when the new team was settling in. It may be noted that science and language arts received more emphasis with primary pupils, whereas mathematics and rocks, soils and minerals appeared more frequently in secondary programs.

Astronomy – Studying the Moon on a Cool, Clear Night

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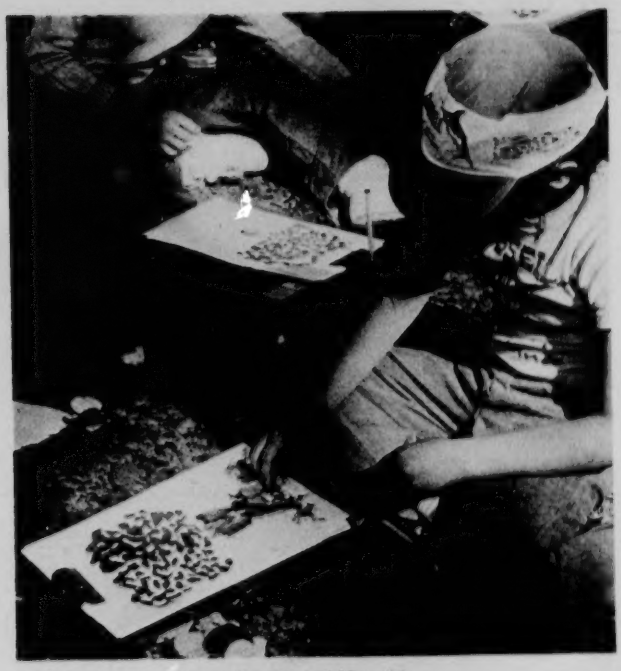
Table 5: Percentage of Occasions (i.e. Day Trips/Camps) When a Particular Category of Activity was Provided

Category of Activity	Term					Period		School		Overall
	1979			1980						
	1	2	3	1	2	Day Trip	Camp	Primary	Second-ary	
science	75(23)	92(27)	89(22)	94(25)	100(32)	85(34)	100(23)	100(27)	64(18)	93(26)
rocks, soils and minerals	75 (9)	8 (1)	22 (3)	19 (2)	16 (3)	9 (2)	27 (3)	14 (2)	36 (7)	19 (2)
social studies	25 (2)	8 (4)	22 (1)	0 (0)	5 (4)	9 (2)	14 (1)	9 (1)	21 (3)	11 (1)
language arts	50(11)	46 (5)	61 (7)	63 (7)	26 (5)	30 (9)	27 (6)	57 (8)	14 (1)	49 (7)
mathematics	75 (6)	100(19)	78(17)	94(18)	95(28)	76(25)	100(18)	88(19)	100(20)	90(20)
art	50 (4)	15 (3)	6 (1)	13 (1)	0 (0)	6 (2)	14 (1)	13 (1)	0 (0)	10 (1)
night activities	75(11)	46(11)	67(11)	63 (9)	32 (8)	3 (1)	100(13)	55 (9)	43(10)	53(10)
general activities	75(34)	92(31)	89(38)	94(39)	89(24)	94(25)	100(37)	98(32)	93(41)	97(34)

N.B. Figures in brackets show the percentage of formal contact time devoted to each category of activity.



Tree Study — A Collage using Natural Materials

Tree Study — Comparing a Diagram with the Real Thing

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In addition to the activities shown in Table 5, it should also be realised that during camp programs all pupils learn a variety of basic camping skills, such as erecting tents and outdoor cookery.

To obtain some indication of the balance between individual activities, a further analysis of the programs was undertaken. This exercise produced the figures presented in Tables 6A and 6B.

Table 6A shows a breakdown of the activities within the categories of science, mathematics, language arts and rocks, soils and minerals. In view of their relatively minor role in the programs, no breakdown of social studies or art activities was attempted. The higher percentages for camp programs reflect the greater variety of activities possible when longer contact periods are involved.

In relation to science activities, Table 6A reveals that those most frequently programmed were birds, nature ramble and tree activity. It is also apparent that nature ramble and the tree activity were more commonly offered to primary schools, whereas activities related to birds featured more commonly in secondary programs. In language arts, the senses activity was confined to primary school pupils. In the sphere of mathematics, compass work appeared in almost 50 per cent of all programs and activities under the broad heading of outdoor mathematics appeared in more than 90 per cent of all programs.

Camping Skills – Shortly After Arrival Pupils Erect Their Tents

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Table 6B shows the comparative frequency with which general and night activities appeared in the Unit's programs. Amongst the general activities it may be noted that orienteering, swimming, conservation, survival activities, and Life Be In It/jogging appeared in more than 30 per cent of all programs. With regard to night activities it is apparent that all camp programs included a campfire singalong and that 78 per cent of such programs also included astronomy.

Although no comparative data are available for other field study centres, discussions with the staff of such centres and with agricultural projects club officers suggest that broad similarities would exist in overall program content, although the individual activities offered are varied to some extent according to local environmental possibilities.

Table 6A: Percentage of Occasions (Day Trips/Camps) When Individual Subject-Oriented Activities Were Provided.

Activity	Type of Contact		Type of School		Overall
	Day Trip	Camp	Primary	Secondary	
science:					
living and non-living things	6	11	11	0	9
insects and spiders	3	8	7	0	6
birds	30	86	59	64	60
freshwater study	0	19	9	14	10
social animals	3	11	7	7	7
nature ramble	55	59	68	14	57
bugs and hoppers	6	14	13	0	10
scavenger/treasure hunt	6	30	23	0	19
tree activity	36	57	57	7	47
other	12	49	34	21	31
rocks, soils and minerals					
soil study	6	14	7	21	10
other	3	22	14	7	13
language arts					
senses	24	35	38	0	30
poetry	9	38	27	14	24
other	3	11	9	0	7
mathematics					
outdoor mathematics	82	100	95	86	91
compass work	45	58	50	43	49

Thinking Together About Conservation

Because a major purpose of the M.F.S.U. is to encourage more environmental education in schools, great care has been taken when planning the programs to exclude any activities which might appear to require special expertise or esoteric knowledge on the part of the teacher. Also, during discussions, M.F.S.U. teachers stressed their own lack of any very specialised knowledge, other than that of competence in organising outdoor activities which they had developed through practice. By way of further encouragement to teachers, the Unit's collection of books, materials and resources is available for reference during visits, and copies of worksheets and pupil handouts may be taken away.

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Table 6B: Percentage of Occasions (Day Trips/Camps) When Individual General Activities Were Provided

Activities	Type of Contact		Type of School		Overall
	Day Trip	Camp	Primary	Secondary	
general activities					
orienteering	9	54	29	50	33
canoeing	6	16	11	14	11
knots	3	24	16	7	14
swimming	9	54	29	50	33
first aid and life saving	3	27	16	14	16
conservation	24	38	29	43	31
group initiative exercises	27	24	23	36	26
lost in the bush	15	24	23	7	20
survival activities	12	41	18	64	36
co-operation games	3	22	9	29	13
bushcraft and outdoor cooking	12	24	21	7	19
general games	18	30	30	7	24
Life Be In It/jogging	0	73	43	21	39
other	33	38	43	0	36
night activities					
astronomy	0	78	43	36	41
campfire singalong	3	100	57	43	54
games	3	81	50	21	44
other	3	14	9	7	9

A Case Study of the Unit in Operation: The Teelba/Beardmore Camp

From 16 to 18 September 1980 the author was able to join the Unit during a three day camp provided for the pupils and teachers from Teelba and Beardmore State schools. Both are small one-teacher schools, situated on the eastern margins of the South-West Priority Country Area, as shown in Map 5. The actual camp site was located by the dam which serves 'Palmerston' station, a property adjoining Teelba school. The camp was attended by the two teachers and a combined pupil group of 13 boys and six girls. On this occasion the author was accompanied by a consultant in environmental education who contributed the written summary of his impressions reproduced in Appendix H.

Figure 2: Timetable for Teelba-Beardmore Camp

	Activity Session	Approx. Time	Monday			Tuesday			Wednesday		
			Activity	Group	Staff	Activity	Group	Staff	Activity	Group	Staff
MORNING	Early Morning	6.30				Birdwatch & jog	Both	B, A	Birdwatch	Both	B
		7.00				FOOD PREPARATION, BREAKFAST AND CLEAN-UP					
	1	9.00	Introduction, Camp rules, Erect tents	Both	A, B, C, D	Conservation Tree Activity	1 2	A B	Orienteering Senses	1 2	C B
		10.15	B R E A K								
	2	10.45	Outdoor maths Orienteering	1 2	A B	Freshwater study Conservation Animal poems	1 2 2	C A B	Opal fossicking	Both	A, B, C, D
		12.00	FOOD PREPARATION, LUNCH AND CLEAN-UP								
AFTERNOON		1.00	Game	Both	A, B	Problem solving game	Both	A, B	Strike camp	Both	A, B, C, D
	3	1.15	Termites Outdoor maths	1 2	C A	Freshwater study Animal poems Conservation	2 1 1	C B A	Social games	Both	A, B, C, D
			Termites Outdoor maths	2 1	C A				Departure		
		3.15	B R E A K								
	4	3.45	First Aid	Both	A	Bonfire building	Both	A, D			
		5.00	FOOD PREPARATION, EVENING MEAL AND CLEAN-UP								
EVENING		6.30	Games	Both	B, C	Mini Olympics	Both	A, B			
	NIGHT	7.00–9.00	Astronomy	Both	C, D	Campfire Singalong	Both	A, B, C, D			
		9.30	L I G H T S O U T								

Group 1 = Kookaburras
Group 2 = Koalas

Staff A, B, C = Unit teaching staff
Staff D = Unit support officer

Palmerston Station Camp Site Beside the Dam

The program followed on this occasion is shown in Figure 2, and its similarity with the sample camp program in Appendix G may be noted. To facilitate a number of formal activities, the pupils were split into two groups on the basis of age, with the older pupils being known as 'Kookaburras' and the younger as 'Koalas'.

During most of the formal activities the two visiting teachers were free to adopt the role of participant observers, although there were frequent opportunities for direct involvement where they so wished. In these circumstances, much appeared to depend on the initiative of the individual teacher, and it was noticed that one teacher generally chose a somewhat higher degree of involvement than the other. At this camp, both teachers showed a keen interest in all activities and assumed their full share of responsibility for food preparation, the supervision of meals and other camp routines. In this regard, members of the Unit staff were agreed that the great majority of visiting teachers was extremely helpful and co-operative during camps. They could recollect only two or three occasions when visiting teachers had treated the camp as a holiday, and had sat reading during formal activities.

Through the carefully planned timetable of activities apparent in Figure 2, pupils were kept fully occupied throughout the camp, with no opportunities for idleness or boredom. From the introductory session on the Tuesday to the departure of the pupils on the Thursday, the organisation of the whole program was unobtrusively smooth and efficient. In discussions concerning program organisation, members of the Unit staff attached considerable importance to practical field experience and the ability of team members to work together harmoniously.

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Considering the camp program as a whole, there appeared to be an appropriate balance between the various types of activity, which were sufficiently diversified to cover the range of experiences implied in the Unit's stated objectives. Thus a brief list of some of the major thrusts of this particular camp program would include:

- ecological studies;
- camping skills;
- physical education;
- outdoor mathematics;
- conservation issues;
- orienteering skills;
- singing;
- problem solving skills;
- first aid;
- astronomical knowledge;
- enjoyment of the outdoors; and
- sensory awareness.

In order to gain a clearer insight into the experiences being offered to pupils and visiting teachers during individual activities, the present author maintained detailed observational records of a number of activity sessions. An analysis of these records revealed the following common features:

- all activities were carefully planned and organised;
- the interest of both pupils and visiting teachers appeared to be well-maintained throughout;
- the activities were chosen to make maximum use of the environmental situation;
- the activities were enjoyed by the participants;
- an ordinary classroom teacher should have the expertise to adapt a high proportion of the activities for his/her own use;
- instructional sessions had simple, clear objectives;
- instructional sessions emphasised pupil involvement and achievement;
- the activities were conspicuously successful in encouraging a high level of pupil interaction and the development of social skills; and
- Unit staff demonstrated a high level of concern for pupil welfare and safety.

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A selection of the worksheets used during observed activity sessions is provided in Appendix I, and copies of these worksheets were, of course, available to visiting teachers.

With regard to the equipment, facilities and resources, these appeared to the present writer to be generally well-suited to the Unit's requirements, a view shared by the Unit staff. The major exceptions were that the portable toilets were not very satisfactory, the astronomical telescope needed servicing, and the provision of a power drill would have facilitated the Unit Support Officer's maintenance tasks. As indicated in Chapter 4, these problems have since received attention.

At the end of the camp, the pupils were asked which of the lessons they liked most, which of the other activities they liked most, and which feature of the camp they liked least. Seventeen of the pupils provided this information and their answers are summarised below.

Lesson activity liked most:

. freshwater study (eight pupils)

. compass work (five pupils)

. animal poem (four pupils)

Other activity liked most:

. campfire (nine pupils)

. mini-Olympics (six pupils)

. problem solving game (two pupils)

Feature of camp liked least:

. prickles/burrs (seven pupils)

. going to bed (four pupils)

. nothing (three pupils)

. washing/showering (two pupils)

. cooking (one pupil).

The answers revealed a fairly high level of agreement amongst pupils about the things they liked most and least. It is of interest that, in ranking scientific and mathematical activities highly, the pupils are in agreement with the views of teachers, reported in the next chapter. The reference to 'prickles/burrs' amongst things liked least refers to the prevalence, in the vicinity of the camp, of a small shrub known locally as 'galvanised burr'.

Observations suggested, and informal discussions confirmed, that the pupils thoroughly enjoyed the experiences provided by the camp, and when questioned they were in unanimous agreement that they would like to attend again.

Discussions with the visiting teachers revealed that both had participated in a visit from the M.F.S.U. approximately eighteen months previously. Both teachers appreciated the opportunity to bring their pupils to such camps and considered that the activities had given them ideas they could use in their everyday teaching programs. The Teelba teacher also referred to the value of M.F.S.U. camps at sites close to participating schools where activities suited to the local area could be demonstrated. A similar point was made by the environmental consultant (Appendix H, page 87).

Both the camp timetable and participant observation revealed that Unit staff were on duty and busy for long hours during school visits, although with a team of three teachers it was possible to roster two on and one off for much of the time. When not performing routine camp chores, or acting as a teacher aide, the Unit Support Officer was fully occupied on maintenance duties. The overall impression received from visiting the Unit was that of a dedicated team of young enthusiasts, working together to provide visiting schools with a relevant and worthwhile experience in outdoor education.

The positive evaluation of the camp experience, for both teachers and pupils, by the environmental consultant may be noted from his written comments in Appendix H. Of particular interest are his recommendations relating to ways of increasing the impact of the M.F.S.U. program through greater involvement of visiting teachers.

Cost of Operating the Unit

As previously indicated, the Unit commenced field operations during 1977. P.C.A.P. records reveal that the capital cost of establishing the Unit was $32 924, made up of expenditure under the headings shown below:

Station Wagon	$ 4832
Four-wheel drive vehicle	$ 6539
Caravan	$ 6940
Trailer	$ 2365
Field Equipment	$ 8790
Transmitter	$ 1415
Additional Equipment	$ 2043
	$32 924

The annual cost of operating the Unit necessarily includes recurrent expenses such as salary and travel allowances as well as the cost of replacing capital equipment. Some indication of the nature and level of such annual costs is provided by the following summary of actual expenditure during the 1979/1980 financial year:

Equipment	$ 1719.02
Materials	$ 859.10
Services/Incidentals	$ 1781.68
Travel (Daily Allowances)	$12 917.12
Salaries	$52 518.26
New Vehicles	$23 174.95
Registration and Insurance	$ 265.13
Running Costs	$ 5583.55
	$98 818.81

It should be noted that the figure of $23 174.95 for new vehicles represented the nett cost of replacing both of the Unit's four-wheel drive vehicles and that, under present policies and at the present level of use, such replacement should only be necessary once every three years. Such an item would not, therefore, be expected to appear in every annual budget. On the other hand, as previously mentioned, the trailer became unserviceable during 1980 and had to be replaced, at a nett cost of $3637.20, in September of that year. Also, current indications are that the useful life of a caravan with the Unit may be four to five years, so that allowance may have to be made for replacement of this item in the 1981/82 budget.

If appropriate allowance is made for the atypical capital replacement expenditure on new vehicles, then an adjusted cost of operating the Unit during 1979/80 would be in the region of $90 000 per annum. During the same period, the Unit provided the service described in earlier sections of this report to 35 schools, involving 75 teachers and 1396 pupils, and also assisted at two five-day music camps organised as part of the P.C.A.P. Instrumental Music Program. Through activities provided at the latter camps the Unit contacted a further 330 pupils.

These figures have been supplied with the intention of giving some general indication of the approximate cost of providing a given level of service. No attempt at cost-benefit analysis is either implied or considered appropriate.

CHAPTER 6

REACTIONS AND OUTCOMES – PART 1: TEACHER PERCEPTIONS

Responses to the Evaluation Sheets

As previously explained, the Unit has sought continuous feedback about its operations from visiting teachers by means of the Evaluation Sheet, reproduced in Appendix E. During the period under review (Terms 1, 2, and 3, 1979 and Terms 1 and 2, 1980), Evaluation Sheets were completed by 54 teachers from 26 different schools.

In addition to the information available from the Evaluation Sheets, teacher opinion was sampled through a series of visits to the south-west area, during third term 1980, when in-depth discussions were held with 26 teachers from 12 schools. The sample was chosen to include:

- principals and other teachers;
- large and small primary schools;
- high schools and secondary departments; and
- State and non-State schools.

The remainder of this chapter presents an analysis of teachers' written responses to the Evaluation Sheets, and their verbal comments recorded during interview sessions.

Question 1

Were pre-visit/pre-camp communication and information sheets adequate? If not, can you make suggestions for improvement?

An analysis of the responses to this question is presented in Table 7.

Table 7: Teacher Judgements Concerning the Adequacy of Pre-Visit and Pre-Camp Arrangements (Based Upon Responses to Question 1)

Teacher Response	1979	1980	Primary	Second-ary	Day Trips	Camps	Overall
adequate	15(50)	17(71)	24(71)	8(40)	10(48)	22(67)	32(59)
inadequate	6(20)		3 (9)	3(15)	2(10)	4(12)	6(11)
other*	8(27)	5(21)	6(18)	7(35)	7(33)	6(18)	13(24)
no answer	1 (3)	2 (8)	1 (3)	2(10)	2(10)	1 (3)	3 (6)
totals	30(100)	24(100)	34(101)	20(100)	21(101)	33(100)	54(100)

N.B. To facilitate comparison, the figures in brackets show the percentage of responses in each category.

* Comments containing no clear judgement of adequacy were included in this category.

The table reveals that, overall, 59 per cent of the teachers judged the pre-visit arrangements adequate and only 11 per cent judged them inadequate. It should also be noted that responses indicating inadequacy were confined to 1979, suggesting that the Unit was able to introduce some improvement in procedures as a result of this feedback. Of the 28 (52 per cent) teachers who supplied comments

. 11 would have liked a more detailed briefing before visits

. 4 would have liked to plan for greater visiting teacher participation in the program

. 4 wanted increased pupil preparation before visits

. 5 referred to problems caused by misunderstandings or breakdowns in communication.

The higher level of satisfaction with pre-visit arrangements during 1980, already noted, was reflected in the majority of teacher comments recorded during interviews, e.g.

I don't see how you can improve it. (primary principal)

I think they were fairly thorough - I was aware of what was going to happen. (secondary teacher)

Thoughtful and successful. (primary principal)

I think it was as good as it could have been. (secondary teacher)

Amongst the smaller number of critical comments recorded were several which resembled those included in the Evaluation Sheets:

We take the kids down, we don't know what they're in for. (secondary teacher)

If we were more involved (in pre-visit preparation) we could have tied it in more with our lessons (secondary teacher)

I didn't know what I was supposed to do (during the camp). (primary principal)

On the other hand, many teachers were enthusiastic about the pre-visit opportunity to participate in program planning, e.g.

I worked out exactly what I wanted and the activities were really great. (primary teacher)

In general, secondary teachers were less satisfied with pre-visit arrangements than their primary counterparts. Nonetheless, a desire for increased participation in Unit programs, both before and during visits, was a recurrent theme in teacher comments and is discussed in more detail later (see also Appendix H, and page 89).

In regard to the desire for increased pupil preparation, it became clear that this had sometimes proved possible and two teachers spoke appreciatively of pre-visits from members of the Unit staff:

... they spent one hour with the children showing slides and motivating their interest. (primary teacher)

He tells the children about the Unit - he showed them slides - what they do at camp. (primary principal)

Given the existing constraints of time and distance, differences in communication structures within schools, and variations in teacher expectations and initiative, it would seem that the Unit has achieved a reasonable level of success in its pre-visit arrangements.

Question 2

One of our aims is to provide new and different learning experiences. Rate the success level of the program.

Poor *Mediocre* *Fair* *Good* *Excellent*

• • • • • • • • • • •

0 *5* *10*

In response to this question, each of the 54 teachers supplied a rating. An analysis of their responses is shown in Table 8.

Table 8: Teacher Ratings of Program Success (Based upon Responses to Question 2)

Statistic	Overall	1979	1980	Primary	Secondary	Day Trips	Camps
mode	8	7	8	8	7	7	8
mean	7.64	7.58	7.71	7.79	7.37	6.88	7.85
range	5-10	5-10	5-10	5-10	5-10	5-10	5-10
standard deviation	1.29	1.35	1.23	1.26	1.33	1.21	1.30
number	54	30	24	35	19	21	33

It may be noted that Unit's success received an overall average rating of 7.64, or 'Good' on the scale provided. Although the differences revealed by the various columns in the table are small, the following points emerge:

. 1980 programs rated very slightly higher than those for 1979

. primary programs rated slightly higher than secondary

. camp programs rated slightly higher than day trips.

The direction of these trends, within the context of generally high average ratings, is broadly consistent with other questionnaire and interview data.

Although the interpretation of results obtained by rating scales is necessarily problematic, it would seem reasonable to conclude from these findings that most respondents were satisfied with the Unit's programs. This view was supported by many of the teacher comments recorded during interviews:

> *We were really delighted, very much delighted, with the work and having the Unit come here so that our children could go out and do environmental studies in their own area. (primary principal)*

> *I thought it (the program) was very valuable. (primary teacher)*

For the youngsters we took, (the program was) very suitable ... the level of work was quite satisfactory ... and the children achieved at that level. (primary teacher)

That's the great advantage of it, that somebody comes in and gives the kids something they wouldn't get otherwise. (primary teacher)

They were such good ideas. (primary teacher)

It was something new and they definitely learned something. (primary teacher)

One of the exceptions to the generally high level of satisfaction with Unit programs, was the following comment from a principal:

It was nothing more than a fun excursion for the kids and a camp out. (primary principal)

From his other comments, it seemed that this principal had doubts about the long term impact of the Unit program and felt that increased emphasis upon in-service development was needed. Another teacher supplied a somewhat contrasting view:

I think overall, as far as their [the pupils] learning is concerned the fact that this is enjoyable learning is important. (primary principal)

Many teachers considered that one of the more valuable aspects of the Unit program was its encouragement of inter-action between pupils. The following comments are representative of this view:

That was the most beneficial thing of the lot, just the social interaction. (primary principal)

It was a good social experience. (primary principal)

The socialising benefits of the Unit program were also much in evidence during the Teelba-Beardmore camp.

Question 3.

Did you see your students in a different light in this situation? Explain.

An analysis of the responses to this question is supplied in Table 9.

Table 9: Teacher Opinions Concerning Whether They Saw Pupils in a 'Different Light' (Based Upon Responses to Question 3)

Teacher Response	Primary	Secondary	Day Trips	Camps	Totals
yes	17(52)	9(43)	9(45)	17(50)	26(48)
no	9(27)	10(48)	6(30)	13(38)	19(35)
other*	7(21)	1 (5)	4(20)	4(12)	8(15)
no answer		1 (5)	1 (5)		1 (2)
totals	33(100)	21(100)	20(100)	34(100)	54(100)

N.B. To facilitate comparison, the figure in brackets shows the percentage of responses in each category.

* Comments indicating no clear decision about whether pupils were seen in a 'different light' were included in this category.

It will be observed that approximately one half of the teachers considered that the Unit program had helped them to see their pupils in a 'different light', and that the proportion of primary teachers sharing this view was somewhat higher than the proportion of secondary teachers. Similarly, the camp situation seems to have been more successful in this regard than the day excursion. The more common explanations offered in support of positive responses fell into the following categories:

. unexpected responses from individual pupils (nine teachers)

. pupils more co-operative than usual (four teachers)

. situation revealed unsuspected abilities (four teachers).

Of the 35 per cent of teachers who responded negatively to Question 3, it may be noted that a higher proportion came from secondary schools. Amongst the more common types of explanation offered for negative responses were:

. pupils behaved as usual (seven teachers)

. pupils had been seen in similar situations before (four teachers);

. teacher knew pupils well before (four teachers).

During interviews, several positive comments were recorded about this aspect of the Unit program:

All the social aspects of the children came through ... you learned so much about them ... you see them in a different light. (primary teacher)

It gave me a different outlook on different kids. (primary principal)

Question 4

Which activity was most successful?

An analysis of the answers to Question 4 produced the figures shown in Table 10.

Table 10: Most Successful Activity – Number of Teachers Nominating Activities in Each Category (Based Upon Responses to Question 4)

Category of Activity	Primary	Secondary	Total
science	6 (18)	5 (25)	11 (20)
mathematics	12 (35)	4 (20)	16 (30)
general activities	6 (18)	6 (30)	12 (22)
all or most activities	4 (12)	2 (10)	6 (11)
other activities	3 (9)	2 (10)	5 (9)
no answer	3 (9)	1 (5)	4 (7)
totals	34(100)	20(100)	54(100)

N.B. To facilitate comparison, the figures in brackets show the percentage of responses in each category.

It will be noted that activities within the categories of 'mathematics', 'general activities' and 'science', in that order, were judged most successful, accounting together for over 70 per cent of all responses. Reference to Table 5 reveals that these were also the categories which had received most emphasis in the Unit's programs. It seems probable that this congruence is indicative of the way that continuous feedback from the Evaluation Sheets has influenced program content. Another contributing factor could be the extent to which teachers were able to choose the activities for inclusion in the program to be offered their school. It is also of interest that 11 per cent of teachers thought that all or most activities were most successful.

With regard to individual activities, the analysis revealed that:

- the one judged most successful was 'compass work', which was nominated by 7 (13 per cent) of respondents
- 22 (38 per cent) of the different activities offered were nominated by at least one teacher
- 11 (19 per cent) were nominated by two or more teachers.

During interview, also, teachers offered comments about the success of some activities:

The astronomy was really good. (primary teacher)

The maths was very successful, very practical. (primary teacher)

They did a lot of measurement, that was good. (primary principal)

The pond one (activity) was a great success ... the kids got a lot out of that. (primary principal)

It may be noted that mathematics and science were again singled out.

Orienteering – Carefully Checking that First Bearing

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Question 5.

What did you like least about the program?

In response to this question teachers supplied a variety of answers, which have been summarised in Table 11.

Table 11: Features of Unit's Visit 'Liked Least' by Teachers (Based Upon Responses to Question 5)

Features 'Liked Least'	Primary	Secondary	Totals
nothing/none disliked	7 (20)	1 (5)	8 (15)
no answer	11 (31)	3 (16)	14 (26)
problems associated with cooking/eating	4 (11)	1 (5)	5 (9)
insufficient pre-camp preparation/post-camp follow up	4 (11)	2 (11)	6 (11)
overall lack of time	3 (9)	5 (26)	8 (15)
camping in winter	2 (6)		2 (4)
early rising		2 (11)	2 (4)
soil studies		3 (16)	3 (6)
other	4 (11)	2 (11)	6 (11)
totals	35(100)	19(100)	54(100)

N.B. To facilitate comparison, the figures in brackets show the percentage of responses in each category.

The table reveals that over 40 per cent of teachers either disliked nothing about the program or supplied no answer to this question. Amongst the other responses, 15 per cent of teachers mentioned lack of time and would have liked longer visits, 11 per cent would have welcomed more pre-camp preparation/post-camp follow-up, and 9 per cent referred to problems associated with cooking or eating, e.g. 'burnt sausages'.

Soil studies received some criticism because teachers considered that this was a difficult topic, which could not be adequately treated in the limited time available, whereas camping in winter was presumably unpopular because of the low minimum temperatures at that time of year.

Overall, it may be noted that secondary teachers were generally more critical than those from primary schools.

Interview comments mentioned similar problems to those raised in the Evaluation Sheets, with summer camps being disliked because of the excessive heat at that season, e.g.

> *Our camp was disadvantaged by the heat – everything had to be done under the trees. (primary principal)*

Several teachers also referred to difficulties associated with lack of time, as illustrated by the following remarks:

> *I felt the one day wasn't sufficient. (primary teacher)*

> *It would have been really good if they could have stayed longer. (primary teacher)*

The service is good ... but it's a very limited experience. (secondary principal)

With regard to the frequency of visits, apart from a few teachers who wanted term visits, the majority favoured a time interval of one year to 18 months.

Question 6.

Suggestions/comments on program and unit and possible changes or suggestions for improvement.

The responses to Question 6 have been summarised in Table 12, which reveals that 13 of the 54 teachers supplied responses commending the Unit or the Unit staff, and that 12 of these were from primary schools.

Table 12: Teacher Comments on Unit Program and Suggestions for Changes/Improvements (Based Upon Responses to Question 6)

Teacher Comment/Suggestion	Number of Responses		
	Primary	Secondary	Totals
Comments:			
commending program/organisation	10 (23)	1 (4)	11 (16)
commending staff	2 (5)		2 (3)
criticising equipment/facilities	2 (5)	1 (4)	3 (4)
other	5 (11)	1 (4)	6 (9)
Suggestions:			
provide tighter program/more activities		4 (16)	4 (6)
improve pre-camp communication/organisation	3 (7)	2 (8)	5 (7)
provide more follow-up ideas/help for teachers	3 (7)	1 (4)	4 (6)
introduce work on animal habitats	1 (2)	1 (4)	2 (3)
allow more time for difficult activities	1 (2)	1 (4)	2 (3)
lengthen camps to increase social benefits	1 (2)	4 (16)	5 (7)
change evaluation procedures	1 (2)	1 (4)	2 (3)
improve equipment/facilities	2 (5)	2 (8)	4 (6)
other	4 (9)	3 (12)	7 (10)
none (nothing to offer)	4 (9)	1 (4)	5 (7)
no answer	5 (11)	2 (8)	7 (10)
totals	44(100)	25(100)	69*(100)

N.B. To facilitate comparison, the figure in brackets shows the percentage of comments/suggestions in each category.

* Of the 54 respondents, 15 provided both comments and suggestions, which produced a total of 69 responses.

Although three comments and seven suggestions related to Equipment/Facilities these ranged from inadequate toilet facilities to the need for flint lighters for barbecues. Two teachers suggested that there was a need for improved food storage facilities.

Amongst the other responses, the desire for a higher level of pre-visit organisation, longer camps, and more follow-up help for teachers again appeared. The interviews, also, produced a variety of responses, of comments and suggestions from teachers, including many which were generally commendatory, e.g.:

All I've got is praise for the work they do and the way they handle the children. (primary teacher)

I think they were really marvellous ... they were very thorough. (primary teacher)

I really admire them (M.F.S.U. staff). (secondary principal)

The venture gets 10 out of 10 as far as I'm concerned. (primary teacher)

I found it of great benefit. (primary teacher)

A number of teachers referred to the standard of organisation of M.F.S.U. programs:

The organisation of the camp was very good. (primary principal)

I thought it was pretty well run myself. (primary principal)

They were very well organised ... they had done a lot of preparation ... (primary teacher)

One teacher who had been involved with P.C.A.P. Music Camps, referred to the work of the M.F.S.U. staff in that direction:

They're certainly very valuable when it comes to the music camp situation - they do a tremendous job there. (secondary principal)

A number of teachers, including several principals, suggested that the main emphasis of the Unit should be upon staff development:

It would be better used as a staff development program. (primary principal)

If you're looking at getting best value for money, I wonder whether it might be best to direct this sort of work towards teachers, towards susceptible teachers, rather than a quick skim over the students. (secondary principal)

Related to this view was the concern of a number of teachers, including several principals, about maximising the impact of the M.F.S.U. program:

It has some impact for a minimum amount of time - it doesn't have the follow through that it should have. (primary principal)

One suggestion, received independently from two principals, was that itineraries might be re-organised to allow two closely spaced visits to each school, with the second or follow-up visit designed to reinforce the work introduced on the first occasion. One principal envisaged that both visits would be similar to those currently provided, whereas the other envisaged that the second visit might be devoted entirely to in-service development.

In view of the importance of this issue, the whole question of teacher development and involvement in the program is discussed separately later in this chapter.

Question 7.

Do you think that this program has inspired you to use the 'environment' more in your teaching?

An analysis of the responses to this question is provided in Table 13.

Table 13: Teachers' Intention to Use the Environment More in Their Teaching (Based Upon Response to Question 7)

Teacher Response	No. of Responses		
	Primary	Secondary	Total
yes	19 (58)	9 (43)	28 (52)
no	4 (12)	2 (10)	6 (11)
other*	9 (27)	9 (43)	18 (33)
no answer	1 (3)	1 (5)	2 (4)
totals	33(100)	21(100)	54(100)

N.B. To facilitate comparison, the figures in brackets show the percentage of responses in each category.

* Comments indicating no clear decision about whether teachers intended to use the environment more were included in this category.

Firstly, it may be noted that over 50 per cent of teachers responded positively to this question and that only 11 per cent answered in the negative, suggesting that the Unit had considerable impact on teacher intentions. The actual impact in practice is discussed in the next chapter. Examples of the type of comment supporting 'Yes' responses included:

- especially in maths and/or science (10 teachers)
- facilitates activity methods (two teachers)
- especially in language arts (two teachers)
- as far as possible (three teachers)
- planning some now (four teachers)
- converted to environmental approach (three teachers).

The emphasis upon mathematics and science could probably be seen as related to the fact that these were judged to be highly successful components of the Unit's program.

Amongst the 'no' answers, three teachers considered that they already used the environment as much as possible, one considered 'it can't be done in manual arts', and another referred to lack of knowledge and of time for preparation. Of the 18 teachers whose answers were indefinite, eight considered that the program had helped them to appreciate the potential of environmental work and four referred to limitations imposed by the curriculum on their subject area. It could reasonably be argued that answers in the former group might represent a guarded affirmative and that those in the latter group have negative implications.

During interviews, several teachers referred to the influence which the M.F.S.U. program had had upon their teaching. As with the questionnaires, opinions differed. Examples of the more positive reactions included:

They gave me the inspiration ... the fantastic ideas. (primary teacher)

We did some maths activities and I thought up a few more - I felt it gave me a new approach. (primary principal)

It encouraged me to go on with it (environmental work) ... they did it so nicely and it was so simple, I felt I could come up to that standard too. (primary teacher)

Yes, some of the class have gone out and done some measuring. (primary teacher)

I have done some of it in school - her techniques and the way she approached it helped me. (primary teacher)

I went through their files and collected a stack of useful materials. (primary principal)

Two teachers, whose visit had been cancelled owing to bad weather, described how they had decided to go ahead with the excursion themselves and spoke appreciatively of the help received from M.F.S.U. staff:

They went to an awful lot of trouble for us. (primary teacher)

They had it all planned out, all the sheets and all the teaching strategies written out ... untold benefit to have all that information. (primary teacher)

Interestingly, these two teachers were also planning to make use of another P.C.A.P. initiative in connection with their excursion:

... plus we've got the Roctapus program 'Here I Am' - it's got a part on bushwalking in it so we're going to use that as a lead up to it. (primary teacher)

These two teachers had also organised their own excursion following a previous visit from the M.F.S.U. and referred enthusiastically to the opportunities that such activities provided for parental involvement:

The parents came along - it encourages the parents so it's a whole family thing - you get much more interest when the parents know what they're doing. (primary teacher)

This view was supported by another teacher, involved in an overnight camp, who also recognised the opportunity for parental involvement:

Couple of fathers turned up each night (and a) couple of mothers each afternoon. (primary principal)

Comments from other teachers regarding the extent to which they have used M.F.S.U. ideas in their schools were more guarded:

Probably not as much as I'd like to. I think it's more incidental rather than formal. (primary principal)

I can't say that it ended up with any teachers taking people out on any environmental trips - whether it made them more aware - using local examples - would be hard to judge. (secondary principal)

The techniques are good in their right place, but not always easy with larger classes. (primary teacher)

Amongst the negative responses, the most common teacher comments referred to lack of time, lack of knowledge or lack of resources:

[We lack] not just the expertise, but the time to prepare for it. (primary teacher)

It [the necessary preparation] would be far too great a work load. (primary principal)

The main reason that they (the teachers) don't do anything ... is that they don't have the skills.

We haven't followed it up ourselves ... we move around too ... and it takes you a good while to find out about the environment around you. (primary teacher)

The kids think: what's the use of coming down (to the creek) - we're not going to learn anything - he doesn't know anything. (primary principal)

We haven't got the gear (for orienteering). (primary principal)

No, because we haven't got the compasses. (primary teacher)

In particular, the lack of compasses for orienteering appeared to be a common problem faced by teachers. It might be worth considering whether such items should be added to the P.C.A.P. resource kits already available to schools in the south-west.

Although some teachers felt they lacked the knowledge to use an environmental approach in their own teaching, a few were less inhibited and prepared to 'have a go'. This view was typified by the following comments:

You don't have to know much. We discuss and examine things and they know all the local names. (primary principal)

I learn with the kids. (primary principal)

An interesting and perhaps important divergence of opinion between Unit staff and visiting teachers was noted in relation to this question of expert knowledge. Whereas members of the M.F.S.U. staff discounted their role as experts, a number of visiting teachers referred to the need for specialist knowledge and skills. Amongst this group of teachers were several who felt that they lacked the personal expertise to attempt successfully the type of activities demonstrated by the Unit. Special efforts to overcome the inhibitions of such teachers may be indicated.

Participating Teachers and the M.F.S.U. Program

Both a majority of teachers and the M.F.S.U. staff appeared to agree that the Unit's major purpose was to help teachers make greater use of the environment in their school programs. Several teacher suggestions to this effect were quoted earlier, and one teacher recognised this emphasis in the Unit's work when she commented:

I could see that their idea was to give us some idea of what we could be doing with the children. (primary teacher)

Members of the Unit staff explained their view of the Unit's main purpose in the following words:

One of the jobs of a field study unit would be to show teachers how the environment can be used in covering the syllabus. (M.F.S.U. teacher)

I've always considered that the aim of the whole program was to try and encourage teachers to utilise their environment more in their everyday teaching situation. (M.F.S.U. teacher)

In connection with the answers to Question 1 on the evaluation sheets, the comments of some teachers about their involvement in program planning were noted. Similarly, some teachers commented on the level of visiting teacher involvement during the actual implementation of M.F.S.U. programs:

When kids were doing the activities I'd go and help where necessary. I found that I was able to get involved without any trouble. (primary principal)

They involve you all the time [although] they didn't talk much about methods. (primary principal)

We went out with the [M.F.S.U.] teachers and they were the leaders and we helped them. (primary principal)

The other teacher and I worked in with the groups. (primary teacher)

I joined in with them [the activities] too. (primary teacher)

Despite the substantial proportion of satisfied teachers, some comments expressed concern about the role of visiting teachers, or indicated a clear desire for greater involvement:

I just followed round with the kids and I learned a few bits and pieces here and there. (primary principal)

It was very limited - more the role of a supervisor, making sure kids behaved themselves ... than a participant. (secondary teacher)

I'd like to see, perhaps, more teacher involvement - where the teachers are taught the skills. (primary principal)

Even if they'd given me something I didn't know much about, I could still be discovering or learning about that while I was doing it because their sheets are fairly structured - there's not much you can do wrong. (primary principal)

It would be more helpful to teachers [if they were more involved in the program]. (secondary principal)

This view was echoed by one of the M.F.S.U. staff who remarked:

Well, I'd like to see a more formalised involvement of [visiting] teachers.

The observations of the environmental consultant (Appendix H) supported this viewpoint. There were, of course, exceptions to this view, expressed by one teacher as follows:

I don't mind the spectator role, because they're trained - they have special skills which we don't. (primary teacher)

A few comments also criticised the attitudes of some visiting teachers:

... the teachers think it's a holiday. (primary principal)

... the teachers tend to think: here's a chance to give the children to someone else. (M.F.S.U. teacher)

It became clear during the interviews that, as previously indicated, a degree of concern existed about the impact the Unit was having and that some teachers had devoted considerable thought to ways of increasing that impact. One of these teachers commented:

There's a tremendous value in it – I believe in environmental education – I'm just not sure that we get the best value out of that van ... I'm sure that most teachers will say, 'that was nice, it will be good when it comes back and we can do it again', not, 'Gee, I learned a lot from that, I'd like to try it myself', and that's not coming across. (primary principal)

The same teacher apportioned the responsibility for this situation as follows:

It's probably partly the fault of the program – the Mobile Field Study Unit – because teachers aren't involved, anyhow. Secondly, it's probably the fault of, say, myself, the principal, because what I should do now is race down there and say, 'That was good, wasn't it? We'll do some more' ... and thirdly, it's the fault of the teachers, because either they're not motivated enough, or they don't have sufficient knowledge – they don't have the training to do it. (primary principal)

He also offered the following solution to the problem which he had identified:

The development of the program should be given back to the teachers. Everything is done for us, isn't it, and they'll go away and we're still none the wiser really, but if we are made to do something ourselves, we have developed an environmental studies segment, we can then go and transfer that learning and do another one, and then do another, and so on. (primary principal)

Activities directly aimed at the in-service development of teachers were advocated in a number of comments, e.g.

Perhaps the field study officers could run a course for teachers ... a camp for teachers, a workshop. (primary principal)

That [a camp for teachers] would be great. I'd love that - I'm always looking for ideas .. I wouldn't mind a weekend, I'd be very happy with weekend camps. (primary teacher)

Although the M.F.S.U. staff accepted the notion that camps, or some other activity, directly aimed at teachers might be valuable, they lacked confidence in their own expertise to conduct this type of in-service development. Interestingly, their doubts were not shared by other teachers:

Now, I sometimes wonder whether a very expert team like that, perhaps, couldn't spend a bit of their time taking teachers out for one day. (secondary principal)

I think they have sufficient skills – I think they have more skills than the average teacher. (primary principal)

These comments referred, of course, to the relatively experienced M.F.S.U. team operating in 1980. With the complete change of teaching staff for 1981, it may be some time before the new team reaches a similar level of expertise. In relation to this question of expertise, or specialist knowledge, the following comment appeared to reflect the views of some secondary teachers:

I'd feel to really make the thing work, from the point of view of secondary science, it would be necessary to have specialist people on it [the Unit]. (secondary principal)

This comment has implications in terms of perceived needs and teacher expectations which the new team may have to confront. With the reduction in the number of M.F.S.U. teachers, and its major role in relation to primary schools, the inclusion of a secondary science specialist in the team may no longer be practicable.

Pupils and the M.F.S.U. – Teacher Perceptions

The interview comments contained numerous references to the effect of the M.F.S.U. program on pupils. Some of these referred to pupil enjoyment and the general success of the program:

I think the kids enjoyed it – they're still talking about it ... it was the highlight of the year. (primary principal)

The children enjoyed it ... they revelled in it. (primary principal)

The kids enjoyed it so much and learnt so much. (primary teacher)

The children enjoyed it ... it was a really rewarding experience. (primary teacher)

As for me and what I saw the children get out of it, it was tremendous. (primary teacher)

They [the pupils] really enjoyed all of the night-time activities. (primary principal)

Although such comments represented the vast majority of opinions, a minority view was expressed by one teacher:

Most of the Year 10 boys were bored stiff - they know most of the common birds ... an outdoor activity - these kids can do it any day or night. (secondary teacher)

Several teachers in the smaller, more remote schools commented on the value of pupil contact with different teachers during M.F.S.U. visits:

Interaction with other teachers is very valuable for them ... the kids here lead a fairly narrow life. (primary principal)

There's the excitement of different people which is useful. (primary teacher)

It's good for the kids to have a break with someone new. (primary teacher)

Several teachers referred to the ongoing impact of the program upon their pupils:

It brought out the leadership in a lot of kids who didn't know they had it and that's carried on. (primary principal)

It's made the kids more interested in what's going on around them. (primary principal)

They [the pupils] came back with more knowledge of their area and more aware of what is around them. (primary teacher)

They [the pupils] know what to look for now ... even though they live out in the bush they don't see those things half the time. (primary principal)

One teacher was less optimistic about ongoing effects when he offered the following illuminative comment:

> *Things like morning bird watching ... for a while they [the pupils] became interested, but it died away. (primary principal)*

A Summary of Teacher Views

It appears that teachers' views of the Unit's program could be broadly summarised as:

- to improve long term impact, visiting teachers need to be more involved in both planning and implementing activities;
- they would welcome special camps or other inservice activities directly aimed at teachers;
- apart from the level of teacher involvement, pre-visit arrangements were satisfactory;
- the program offered to schools was useful and worthwhile, especially in the opportunities provided for pupil interaction;
- the program helped the majority of teachers to see their pupils in a different light;
- the most successful curriculum specific activities were mathematics and science;
- the major criticism of the program was lack of time;
- many teachers were impressed with the professional competence of M.F.S.U. staff: and
- the majority of teachers considered that the unit had encouraged them to use the environment more in their teaching.

In considering both the common and divergent factors amongst teacher responses, it became increasingly apparent that teacher perceptions of the Unit's program appeared to depend as much upon the personalities and professional background of the teacher informants as upon the intrinsic merits of the program itself. This view corresponds with that of Crossland and Moore (1974) who found that the acceptability of the 'Environmental Studies Project' in Wales was more closely related to teacher variables than any other factor.

CHAPTER 7

REACTIONS AND OUTCOMES - PART 2: THE VIEWS OF ADMINISTRATORS AND LOCAL ADVISORY COMMITTEES

The Views of Administrators

During the data collection stage of this study, in-depth discussions were held with people associated with P.C.A.P., or with P.C.A.P. schools, in an administrative or advisory capacity. Several of these officers had observed the M.F.S.U. in action, whereas others were in a position to assess at first hand the impact of its operations in the south-west area. For convenience, the views of these informants have been categorised under appropriate sub-headings.

Needs and Purposes

Some comments recorded during these discussions related to the need for the Unit and the purpose of its activities.

> *The original need came about because there weren't any fixed centres out there.*
>
> *I really think a balanced education out there was lacking in the way of field studies until this (the M.F.S.U.) was set up.*
>
> *Field study centres are, after all, only a means to an end – they're a means to show teachers how some resources can be used – the ultimate environmental studies are done in the school ground itself.*
>
> *It's the teachers that have got to be prepared, not the kids.*
>
> *We want to pull home to the teachers and to the kids an awareness of the environment, of what's around them, and how man is using or misusing it, so that they will start to bring that into their school programs and I think that's where we'll teach environmental education - in the schools, not in the field study centres.*

There appeared to be a general consensus amongst this group of informants concerning the need for the Unit, and that its major purpose was to help and encourage teachers develop the concepts of environmental education in their school programs. In emphasising that the main thrust of the programs offered by field study centres should be aimed at teachers, one informant commented:

> *This was one concept we had a lot of trouble with in getting through to staff of all our field study centres – they tried to set themselves up as teachers of children and they're not expected to be that – they're motivators of teachers, really.*

Compared to the views of teachers, this group of informants appeared to be more concerned about the Unit's intended effect on teachers than on pupils. From the overall content of the discussions, however, it appeared that this emphasis derived, in the main, from a feeling that the Unit's program may have been more successful in its work with pupils than in its long-term impact on teachers. Also, in maintaining this emphasis, there were no indications that members of the group wished to discount the value of the experience which the M.F.S.U. was providing to children in the south-west, as the following comment shows:

> *The team has done tremendous things for kids.*

Activities and Timetables

In relation to the content of programs offered by the M.F.S.U., one informant with a background in environmental studies expressed the following opinion:

> *To me a field study unit is an outdoor classroom - you're still teaching all subject areas, but instead of doing them within the confines of four walls, you're doing them in an outdoor environment, which may vary from place to place.*

Freshwater Study – Examining the Contents of a Dip Net

This view appeared to accord well with the wide range of activities included in the Unit program, as described in Chapter 5. Another informant, who had also spent some time with the Unit, supported this conclusion in commenting:

> *Ecology, camping skills, bushcraft survival, first-aid, compass - they're covering most of what I'd expect.*

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This same informant also commented favourably upon the timetable:

They had a full timetable - they had it pretty well planned, I thought.

This latter view appeared similar to that expressed by a majority of teachers.

Staffing the Unit

From the recorded discussions, it was clear that numbers of this group attached considerable importance to the question of staffing the Unit. This concern is well illustrated by the following representative comment:

It [the Unit's effectiveness] all depends on the staff.

In particular, the need for a harmonious working relationship between the officers staffing the M.F.S.U. was recognised and there appeared to be a high level of consensus amongst this group that the 1980 team of three teachers had worked well together:

They seem to have knitted into a fairly good team.

The three [teacher] situation which you have now has worked well.

Continuity of staffing was also seen as an important factor in the maintnenance of an effective program and for this reason two years was seen as a reasonable period of service with the Unit. It may be noted that this view accorded with that of Unit staff, reported in Chapter 4. Members of this informant group were clearly agreed that a too rapid turnover of staff would be undesirable:

One year [with the M.F.S.U.] is a bit short.

If you're going to have a system that's worthwhile in the long term, can you afford to have staff turnover at that rate – because you won't have ongoing programs, you can't.

Views on the selection of staff for the Unit came mainly from administrators or advisors with a background in environmental education. Their comments indicated that successful teaching experience and an enthusiasm for outdoor education were seen as two of the more important attributes, with one informant suggesting that a suitable appointee would be one who

...has some years teaching experience and is interested in that sort of thing [outdoor education] ..., in preference to a specialist.

A similar view was expressed by members of the 1980 M.F.S.U. team during interview, although the latter also commented on the value, with a team of three, of having one science specialist. In Appendix H (footnote to page 89) it is argued that M.F.S.U. staff need a background of practical classroom experience combined with some knowledge of environmental education.

In regard to the level of staffing there was less agreement between the M.F.S.U. team and this group of informants, with the administrators and advisors, in general, tending to favour a further reduction in Unit staffing to a level of two teachers and a Unit Support Officer. From the Chairman's comment in relation to the resignation of the teacher-in-charge, this latter view appears to have been shared by the South-west P.C.A.P. Regional Committee:

Our present proposal is not to replace him until we see how things go.

Other comments relating to the level of staffing included:

> *It [the M.F.S.U.] was originally to have a staff of two...I think that two teachers in a situtation like that will get along well together.*

> *My feeling is still that the ideal team is a male and a female (teacher) with a Unit Support Officer... making more use, I think, of the teachers from the schools out there - the same as we do in the permanent situation.*

The importance of combining any reduction in Unit staffing with a greater involvement of visiting teachers was recognised in several other comments:

> *They're [the Unit staff] going all the time - I definitely think you need three teachers - unless you have (visiting) teachers actually taking lessons.*

> *Make sure that the person who's coming is utilised to the full extent - they're not there just for a holiday.*

This latter comment echoes some of the views of principals quoted earlier, in Chapter 6, and further comments relating to teacher involvement in Unit programs appear later in this chapter.

Amongst the administrators and advisers who had spent time with the M.F.S.U., there was an awareness of the demanding nature of the duties and responsibilities facing Unit staff. As one experienced administrator, describing the task of the unit staff during camps, commented:

> *It's not an easy one, because you've got a lot more responsibility in that you have kiddies not in a set classroom inside - you don't have any dangers in the classroom such as snakes, or drowning or the elements - you add to the responsibilities, and they're with them for 24 hours a day.*

This same informant, commenting on the need for itineraries to include regular periods at base, added:

> *It's all right for a week, but I do think they need time off – for preparation – for a break.*

Another informant, with considerable experience of fixed field study centres, supported this view by explaining how staff in those centres are recompensed for their extra duties:

> *They get time off in lieu of night work.*

He also explained that for fixed centres, where the additional load of itinerancy is absent, maximum weekly contact time is normally four days.

As a means of relieving pressures on M.F.S.U. staff, one administrator drew attention to the value of being able sometimes to make use of the facilities at Columboola Field Study Centre. When holding camps there, the problems of itinerancy are reduced and the resident teacher is available as an addition to the team.

In relation to the pressures of itinerancy, another informant drew attention to the advantages of the system used to staff the Mobile Manual Arts Unit, whereby teachers from a departmental pool staff that Unit on a rotational basis. Applying this notion to the M.F.S.U., it was suggested that the staff might rotate with teachers working in fixed field centres, with possible benefits in terms of continuity and variety of experience for all concerned.

Itineraries and Bases

Amongst this group of informants there was a general consensus favouring some reduction in the level of itinerancy maintained by the Unit during 1979 and 1980, although the retention of some degree of mobility was generally regarded as essential. Recognition of this latter point is illustrated by the following comments:

> *Here you've got such vast distances between schools that its not really viable to set up the central centre – you'd be travelling kids 900-1000 kilometres.*

> *I think the mobility angle is probably the most important angle of this, because it gets to the children.*

Several reasons were advanced in favour of decreased mobility, with cost being one area of particular concern to those members of the group more closely associated with P.C.A.P. budgeting. Such concern gave rise to the following comment:

> *I think that we've got to look at cost-effectiveness – in terms of fuel and in terms of staff.*

This informant, along with several others, advocated limiting the number of camp sites used by the Unit and increasing the amount of travelling by schools. This he considered would decrease not only fuel costs and wear and tear on equipment, but also salary costs, by facilitating a reduction in the number of M.F.S.U. teachers. Referring to the use of a limited number of sites this informant commented:

> *That's fairly cost-effective in the short range - it lets you bring your staff levels down a bit and it lets you centralise your resources.*

Another informant within this group drew attention to the difficulties facing M.F.S.U. staff in having to familiarise themselves rapidly with the environment of a new site at each camp. He suggested that the concept of taking the Unit to each separate school placed considerable strain on the professional capacity of Unit staff and for this reason favoured some reduction in mobility.

> *I think the general staff that we get are not quite able to keep up with that concept and I think it's probably a better idea to have a little less mobility and a little more bringing the children into a central base camp.*

Despite the general consensus that some decrease in mobility might be desirable several members of this group were concerned that too drastic a reduction in the number of sites might throw too great a burden of travelling on visiting schools and might detract from the original concept of the M.F.S.U. Such doubts took several forms. One informant thought that if too few centres were used some schools might no longer participate and that the further the camp site was removed from the school the less the teachers learnt about using their local resources:

> *Where you set up a centre and bring the school in you lose a lot of that resourceful use of the environment.*

Another informant had reservations about excessive use of obviously attractive sites such as the Carnarvons:

> *I want them to get away from the idea that field study centres are set up as a nice camping site – it's a nice place to go. That's not the idea of what we're on about. We're on about making the teachers and kids aware of their environment – it doesn't have to be a nice spot or scenically attractive.*

During discussions concerning the vexed question of the most appropriate level of mobility, one senior administrator suggested what appeared to be a possible compromise, in full accord with the P.C.A.P. principle of 'equalisation of opportunity'. His proposal was that any reduction in the number of camp sites should be so planned that the amount of travelling required of country schools would be no greater than that normally involved when a coastal school visited one of the fixed centres.

With regard to the frequency of visits, informants in this group generally considered that the present level of contact was satisfactory, although the need for post-visits is discussed in the following sections.

Impact on Teachers

As previously indicated, there was some concern amongst this group of informants that the impact of the M.F.S.U. upon visiting teachers was not all that had been hoped and that perhaps visiting teachers had been insufficiently involved in the Unit program. This was illustrated by the following comments:

I doubt that many of them (the teachers) follow it up very seriously with some environmental studies when they come back to their own local areas.

I'm not sure that w.. ended up training teachers in this skill, I think we ended up training a lot of kids.

It would be marvellous if there was a carry over, but I haven't noticed it...I think they're identifying that sort of thing with the Field Study Unit and their classroom teaching with themselves.

They don't really follow it on a great deal ... as soon as it's over, it's back to school.

There were not structured lessons for those teachers and I think they treated it as a bit of a holiday.

Despite this concern about the general level of impact upon schools, informants recognised that there were also exceptions, where some degree of carryover might be inferred, e.g.

...school – there's been a lot of environmental work out there. They have their nature trail into the hills behind the school ...

With regard to the need for greater teacher involvement, there was general agreement between this group and some of the teachers quoted earlier. This greater involvement of visiting teachers was advocated not only as a means of reducing the work load of Unit staff but as a means of increasing the value of the experience for visiting teachers.

I think they've got to involve the teachers very deeply in the activities, and then of course they'll hopefully go back and do .his in their own environment.

They should be very much involved in the program and perhaps helping to evolve the program that they want for their kids.

One informant explained how the degree of visiting teacher involvement had developed through three stages at one of the fixed centres.

The first year was a passive type of thing, the second year we involved them with the children, the third year we tried to involve them in making their own worksheets.

This informant explained that by passive involvement he meant that the visiting teachers had no planned role, but merely attached themselves to a group being taken by one of the centre teachers. He judged this approach to have been relatively ineffectual:

Because they weren't involved, we got no follow-up back at the school.

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For this reason, they next required visiting teachers to lead groups of students in activities planned by the centre staff and then, finally, visiting teachers were expected both to plan and lead some activities chosen by themselves at the pre-visit stage. It would seem that teacher involvement in the M.F.S.U. program has been largely restricted to the 'passive' or first year type of involvement described by this informant. Greater teacher involvement in M.F.S.U. programs is firmly advocated in Appendix H.

In addition to greater teacher involvement, the administrators and advisors had other suggestions for increasing M.F.S.U. impact on teachers. One related to the notion of a follow-up or post-visit after each camp, e.g.

> *In my opinion the field study [unit] is there to motivate teachers and as such you must do a pre-visit, you have your children visit the centre, and then you do a follow-up visit – go to the school and show him [the teacher], help him to use the school environment.*

> *Probably if they had a follow-up visit to a school and actually showed them things around that actual school – that might encourage them.*

This concept of a post-visit received particularly strong support from those administrators and advisors who were deeply involved in environmental education themselves. Some members of this group also recognised that senior administrators could enhance the impact of the M.F.S.U. by demonstrating an interest both in the camp programs and in the follow-up work in schools:

> *I suppose really it should come from above, shouldn't it? We should be allowing the teachers to know what our expectations are.*

Members of this group also drew attention to the differences of impact which the M.F.S.U. had on different schools. The two principal variables mentioned were those relating to teacher characteristics and those relating to the size of the school. Typical of the comments relating to teacher variables were:

> *It depends entirely on personalities and how you get through to teachers – some I can get through to and some I can't and I'm sure the Mobile Field Study Centre must have the same problems.*

> *Really, if you've got a go-ahead teacher he'll go back there and he'll look around the district and work out what he can do.*

Attention was previously drawn to the importance of teacher variables at the end of Chapter 6.

With regard to school size, the general opinion was that the Unit had had most impact on the small primary schools, as the following comments illustrate:

> *I think it [the M.F.S.U.] just has a better impact in the small schools.*

> *I always feel also that the children in the smaller schools, and the teachers in the smaller schools, are more likely to go back and include something of their environmental program in their own science and project club work at their schools, whereas the teachers and the children in the large schools are not - they see it as a day out.*

> *You get a social experience coming into this that you don't get in larger schools.*

It will be remembered from Chapter 6, that primary school teachers were generally more positive in their judgements of M.F.S.U. programs than teachers from secondary schools. The possible implications of the effect of these variables on Unit impact is discussed further in Chapter 8.

Equipment

In general, the administrators and advisors were agreed that the M.F.S.U. had a suitable range of equipment for its needs. Those who had seen the new trailer considered it to be a great improvement on the previous model, with one senior administrator describing it as 'excellent'. The only item which appeared to be causing any real concern was the caravan, on account of its age:

The caravan is feeling its age ... simply wearing out.

Although the present van was thought to have performed reasonably well, a van of more robust construction was seen as desirable, to cope with the road conditions encountered in south-west Queensland. A second design problem concerned the difficulty of securing the two refrigerators to the walls of the van. At the time of writing, no completely satisfactory solution to this latter problem had been found. If the Unit is to continue operations during 1982, the design of a suitable replacement van will soon have to be faced.

Other Comments

Because of their varied duties and responsibilities, members of this informant group were able to offer many interesting comments about the general performance of the M.F.S.U. The more positive comments included:

I think it's [the M.F.S.U.] probably worked very well really.

I think it's very well received, particularly by the children.

... it's very well received by the parents – they've all given it the greatest of praise. They think it's a terrific experience, just the experience of getting the children together in that sort of situation, which those western kids don't get very much of.

I think the music camp idea – of the Unit going with the music camp – is excellent.

I think it probably does make them [the pupils] more aware of their local environment.

I think the other important spin-off of the M.F.S.U. work has been in the social field – I think that's very valuable.

I know how welcome they [the M.F.S.U.] are in all the western schools as far as parents, children and teachers are concerned.

Although the greater number of these general comments were of a positive nature, one senior administrator voiced a doubt, which was not uncommon, about the relevance of the M.F.S.U. programs for country children:

Although we're aiming to teach skills, one of the things that parents say to me is 'Really our kids know – they're bush kids and they know their area', ... and to take them out and study their own environment is not really profitable to the kids; it might be to the teachers.

It was noticeable however, that informants with a background in environmental education did not accept this view:

Sure, the children have got a fairly detailed knowledge of specific things in their own local environment, but I doubt that they see the forest behind the trees, personally, and I doubt that many of the parents do either ... I doubt that they really understand the interactions within the environment ...

This comment, whilst recognising the children's working knowledge of the environment, draws attention to an important area of need which has been recognised in Unit programs. Thus a fundamental purpose underlying many of the Unit's activities is that of raising the children's understanding of the environment from the level of factual knowledge towards a grasp of the complex inter-relationships found in all biotic systems.

Members of the M.F.S.U. team were also agreed that the children's general knowledge of the local environment, although considerable, was far from complete, a point well illustrated by the children's astonishment at the wealth of minute life forms found in the dam water during the Teelba-Beardmore camp (see Appendix H, page 87). With regard to the relevance of M.F.S.U. programs for country children, it is also important to note that a study of the environment is generally accepted as only one aspect of environmental education.

Nevertheless, since a level of concern clearly exists about the relevance of M.F.S.U. programs, it may be advisable to consider some form of public relations exercise to increase parental awareness of what the unit has to offer. Perhaps efforts to encourage more parents to participate in overnight camps might accomplish this, whilst also making available additional adult assistance and, possibly, expert local knowledge. The mini-schools organised by P.C.A.P. itinerant teachers could be seen as providing a successful precedent for greater parental involvement of this type.

Summary of the Views of Administrators and Advisors

Although the views of these informants were diverse and sometimes conflicting, it would appear possible to summarise group perceptions as follows:

- the M.F.S.U. met a need for environmental education in south-west Queensland;
- although the M.F.S.U. did useful work with pupils, the main emphasis should be upon assisting teachers;
- M.F.S.U. programs incorporated a suitable range of activities;
- members of the 1979/80 M.F.S.U. team had worked well together;
- M.F.S.U. staff should be chosen on the basis of teaching experience, enthusiasm for outdoor education, ability to co-operate and willingness to serve two years with the Unit, rather than on the basis of specialist expertise;
- in the interests of cost-effectiveness, both the mobility and the staffing of the Unit should be reduced, the latter to two teachers and a Unit Support Officer;
- the frequency of visits to schools, approximately once every eighteen months, was quite sufficient;
- to increase impact on school curricula, visiting teachers should be more involved in planning and implementing Unit programs, and M.F.S.U. itineraries should be modified to include follow-up visits to schools;
- senior administrators could possibly enhance the impact of the Unit by making their expectations known;
- important variables affecting the Unit's impact were teacher characteristics and school size, with small schools appearing to benefit more from the service;
- the Unit possessed a satisfactory range of equipment and the new trailer was excellent, but the present caravan was unlikely to last beyond 1981;

- in general, the Unit was well-received by teachers, pupils and parents; and

- the notion that country children, by reason of their local knowledge, might benefit less from field study programs was discounted by the specialists in environmental education.

The Views of Local Advisory Committees

In the South-West Priority Country Area, Local Advisory Committees (L.A.C.s) were formed in a number of centres to keep the State Committee aware of local reactions both to individual P.C.A.P. initiatives and to the overall program. Membership of such committees has normally allowed for representation of a variety of community interests and of State and non-State schools. Amongst the various responsibilities of these Committees has been that of monitoring the P.C.A.P. initiatives in their areas. In the course of this duty, several L.A.C.s have supplied written comments evaluating the work of the M.F.S.U. Most were of a positive nature, e.g.

> *This team and their work was seen as a necessary part of education ... In general the standard of the work offered was of the highest calibre. (Cunnamulla)*
>
> *Members were agreed that the content of teaching of this unit was excellent and were full of praise for the staff manning the Unit. (Roma)*
>
> *General feeling from small schools that the support is great, but larger schools felt the work was spread a little too thinly. (St George)*
>
> *General feeling that the unit support for the small schools was good. Due to lack of time the assistance given to larger schools was somewhat limited. Greater participation from the school based teachers was seen to be important as one of the aims of the unit is advising teachers. (Charleville)*

In connection with these last points, it will be remembered that references to the greater impact of the unit on small schools and to the need for greater involvement of visiting teachers have appeared previously in the remarks of teachers and administrators.

Only two L.A.C.s expressed doubts about the present M.F.S.U. program and suggested certain changes of emphasis:

> *Limited value here. Not held in the highest regard.*
> *Improvements: 1. Smaller groups out for two or three nights.*
> *2. Possibly more survival teaching - fire lighting.*
> *3. Possible inclusion of qualified art teacher.*
> *Should still be maintained on rotation basis to suit Thargomindah. (Thargomindah)*
>
> *People aren't happy with the program. Children are happy with it just for the change...*
> *If continued we would like to see more exploration, hiking, canoeing and bush crafts. (Quilpie)*

It would appear that Quilpie L.A.C. would favour a program which had more in common with that offered by outdoor adventure centres, such as that at Maroon, whereas the reservations at Thargomindah may well relate to the problems which arose during a visit there by the previous team in 1978.

Two L.A.C.s, Cunnamulla and Quilpie, both suggested that children would benefit from studying different environments, and the former also suggested some decrease in Unit mobility:

... the Unit could be based in a specific area for a certain period, rather than have the Unit move from centre to centre ... This should cut down on travelling costs and it would also give children access to environments other than their own local area. (Cunnamulla)

The similarity of this view with that of several administrators, quoted earlier in this chapter, may be noted.

Quilpie L.A.C., concerned about operational costs, also suggested a drastic reduction in Unit staffing:

One expert advisory teacher to aid the local personnel for younger Years instead of the three teachers and one Unit Support Officer. This could alleviate some of this cost. (Quilpie)

This suggestion would seem to imply a rather different concept from that of the present Unit, involving just a single itinerant advisory teacher in environmental education for the south-west area.

Another L.A.C. echoed the comments of a small number of teachers in referring to lack of communication at the pre-visit stage:

However, communications before the visit remained vague. (Roma)

The following list represents an attempt to summarise some of the main points raised by L.A.C.s:

- most L.A.C.s value the present work of the Unit;
- one L.A.C. would welcome more emphasis on adventure-type activities;
- use of fewer centres could reduce travelling costs;
- replacing the present Unit with one itinerant advisory teacher could help to contain costs;
- children benefit from studying environments different from their own locality;
- the level of pre-visit communication could be improved; and
- greater involvement of visiting teachers in Unit programs may be desirable.

CHAPTER 8

REACTIONS AND OUTCOMES -- PART 3: THE ACHIEVEMENT OF OBJECTIVES

Assessing Achievement

In this chapter an attempt will be made to examine the extent to which the Unit has achieved its original long- and short-term objectives, which were set out in Chapter 4. For several reasons, no attempt was made to devise strategies or instruments intended to measure with any degree of precision, the degree of success attained in achieving these objectives. Firstly, as Scriven (1971) has suggested, undue pre-occupation with pre-specified objectives may impoverish the evaluation through a failure to recognise unspecified outcomes. Secondly, the objectives were not stated in such precise behavioural terms as to lend themselves to this approach. Thirdly, the work of Crossland and Moore (1974) suggests that any attempt to measure the development of skills would be unlikely to prove successful. Even in a long term environmental curriculum project, aimed at developing skills in specific areas, with control groups and validated instruments, they were unable to demonstrate any statistically significant gains.

More encouraging, for the purposes of this evaluation, was the work of Gross and Pizzini (1979), who concentrated upon student attitudes and perceptions, using a separate sample pre-test, post-test model. They concluded that, although the maximum effect resulted when field experiences were preceded by preparatory classroom work, the traditional short-term experiences provided by field centres can also positively affect student attitudes and perceptions. Time did not permit any replication of their work with M.F.S.U. pupils, although as part of an ongoing evaluation program this might well be seen as desirable.

No studies were located which had specifically investigated the effect of such experiences on teachers' attitudes or behaviour, although Crossland and Moore, mentioned above, found that teacher variables were the major factor governing the acceptability of an environmental studies approach in the schools which they studied. In view of the level of concern of many informants about the impact of the Unit's programs upon teachers, and through them upon the curriculum, some criteria for judging the extent of such impact may need to be devised.

Short-Term Objectives

These will be considered first not only because they are more specific in type, but also because their achievement could be expected to contribute to the attainment of the long-term objectives. To facilitate this consideration, the list of short-term objectives has been reproduced in Table 14. This table also attempts to summarise the main processes by which these objectives have been approached and the extent of the progress achieved.

In regard to short-term objective number 1, the provision of a mobile unit, this has clearly been achieved, although trialling of various combinations of staffing level, vehicle types and degree of itinerancy has continued in an effort to maximise cost-effectiveness. Short-term objective number two has also been achieved in the sense that every school has been interested enough to wish to make use of the Unit's facilities when available. Approximately half the teachers visiting the Unit have been sufficiently motivated to intend to make greater use of the environment in their teaching.

A large measure of success has also been achieved in relation to short-term objective number three, since Unit staff have devised an extensive range of integrated, multidisciplinary work programs from which a combination of activities can be selected to suit the requirements of each school. These activities have been highly rated both by participating teachers and by visiting experts. It is through involving pupils in

Table 14: Achievement of Short-Term Objectives

Purpose	Process	Progress
1. To provide a mobile base for day and overnight excursions in environmental studies for schools in the South-West Priority Country Area.	Funding the purchase of a caravan, trailer, two vehicles, equipment and materials for the Unit. Appointment and orientation of staff; funding salaries, travelling and other recurrent expenses.	The mobile unit has been operating in south-west Queensland since 1977. An improved trailer has been designed and built and types and combinations of vehicles trialled. Experiments are continuing to ascertain the most effective combination of staffing level and degree of mobility.
2. To foster, by providing better facilities, interest in field studies in the local area.	Provision of a range of camping equipment and resources in environmental education and devising an itinerary to make these available to schools. Use of the M.F.S.U. facilities to demonstrate the field study potential of local areas and the value of environmental studies to the school curriculum.	Over 50 per cent of visiting teachers state that they have been inspired to use the environment more as a result of the M.F.S.U. On average some 75 teachers and some 1400 pupils make use of M.F.S.U. facilities each year. All schools have been sufficiently interested to accept the Unit's services.
3. To offer an integrated, multi-disciplinary program of instruction, and activities suited to the environment used.	Development of programs for day and overnight excursions which incorporate an integrated, multi-disciplinary approach. Development of an extensive range of activities from which a suitable selection can be made for each school visit.	M.F.S.U. staff have devised 59 varied activities from which individual programs can be selected. Pre-visits are provided so that teachers and Unit staff can finalise a suitable program for each school. Each year, Unit staff provide some 20 day excursions and 30 overnight camps which offer these activities. Visiting teachers have rated Unit programs highly.
4. To develop field skills through activities in the local environment and to develop social and physical skills through adventure and challenge.	Involving pupils in a range of environmental activities designed to develop field skills. Incorporation in the program of pupil activities which provide opportunities for the development of social and physical skills.	All Unit activities provide practice in one or more of these skill areas, with approximately 56 per cent emphasising field skills and 44 per cent emphasising physical and social skills. Teachers, parents and administrators have positively evaluated the social impact of Unit programs. Teachers have also noted the development of pupils' field skills, which they have sometimes used as a basis for further studies.
5. To promote the development of local field studies by encouraging projects in nature trails, environmental areas, research usage, habitat studies, environmental problem solving.	M.F.S.U. programs have been designed to demonstrate strategies which visiting teachers can use in their own schools. Visiting teachers are encouraged to observe and participate in a range of activities during day excursions and camps. Copies of activity sheets and other resource materials are made available to visiting teachers.	Eleven (42 per cent) of the teachers interviewed had used ideas gained from the M.F.S.U. in their school curricula. The involvement of visiting teachers has not generally gone beyond participant observation of activities. Post-visits by Unit staff and statements of expectation from senior administrators have been suggested.

a balanced program of these activities that the Unit endeavours to achieve short-term objective number four, the development of social, physical and field skills. Although no attempt has been made at formal measurement, development of these skills has been noted by teachers and others, with social skills being most frequently mentioned.

Of all the short-term objectives, number five has probably proved the most elusive. Although some 40 per cent of the teachers interviewed were able to cite specific instances of how the M.F.S.U. program had influenced their teaching, there was a substantial body of opinion that the Unit's impact on school programs had been relatively limited.

Long-Term Objectives

A list of the long-term objectives and a summary of the Unit's approach to achieving them is provided in Table 15. It is clearly no accident that long-term objectives numbers one and two, which relate to helping and encouraging teachers to make more use of the environment in their school work, were accorded priority in the original statement of objectives. The importance of this aspect of the Unit's work has been recognised not only by Connell (1977) in his summary of M.F.S.U. purposes, quoted in Chapter 1, but also by school principals, educational administrators and advisors, and M.F.S.U. staff during interview. Table 15 suggests that the approach to these first two long-term objectives has been largely by way of short-term objectives numbers one, two, three and five. Some measure of achievement is provided by the 50 per cent of teachers who claim to have been positively influenced by the Unit's program of pre-visits, overnight camps and day excursions. Concern to increase the Unit's achievement of these objectives has produced a number of constructive suggestions:

- greater involvement of visiting teachers in the planning and implementation of Unit programs for overnight camps and day excursions;

- follow-up or post-visits to schools by Unit staff to help teachers apply environmental strategies in the school situation; and

- senior administrative staff to make teachers aware of their expectations in relation to environmental education.

Finally, there is the work of Crossland and Moore (1974) to serve as a constant reminder that teacher variables can be expected to have considerable effect on the achievement of these two objectives.

Long term objective number three is largely approached through activities related to social studies, geology and science which contribute to an understanding of the total environment and comprise, on average, about 30 per cent of the formal program during Unit-school contact time. Although the verbal and written responses of pupils suggest that the carefully structured, task-oriented approach used by Unit staff is reasonably effective, no comprehensive testing program has been undertaken.

Long-term objectives numbers four and five, relating to man's powers of environmental manipulation and to attitudes of concern for environmental quality, are directly approached through the conservation activities in the M.F.S.U. program. Records indicate that about 30 per cent of visiting schools choose these conservation activities for their pupils. In addition, the principles of conservation are taught indirectly in many of the other activities included in the Unit's programs.

Long-term objective number 6, which is concerned with the development of feelings of well-being with nature, is approached indirectly, through providing a wide range of activities during which pupils can safely enjoy their natural surroundings. The involvement of pupils in practical camping experiences, together with bushcraft and survival activities, also contributes to this end. Here it may be noted that long-term objectives five and six both lie within the affective domain investigated by Gross and Pizzini (1979), whose findings indicate that short-term experiences such as those offered by the M.F.S.U. can have positive effects on pupil attitudes and perceptions.

Table 15: Achievement of Long-Term Objectives

Purpose	Process	Progress
1. To assist teachers in primary and secondary schools in south-western Queensland to determine the potentialities of their local areas for structuring activities suited to their educational programs.	Development of the M.F.S.U. with its itineraries and programs, through short-term objectives 1, 2 and 3. Demonstration of suitable activities during day excursions or overnight camps in the school's local area.	Since 1977 the M.F.S.U. has been providing a regular service to all schools in the south-west area, involving approximately 30 per cent of all the teachers each year. Itineraries providing pre-visits followed by camps or day excursions have been implemented as described under short-term objectives 1, 2 and 3.
2. To encourage teachers to develop materials and to structure activities based upon the environmental aspects of the area.	Development of a range of suitable activities to serve as an example to teachers. Copies of activity sheets and other resource materials are made available to visiting teachers. Refer also to short-term objectives 3 and 5.	About 50 per cent of teachers have been inspired to use the environment more and perhaps 40 per cent have used specific strategies (see short-term objectives 2, 3 and 5). Increased involvement of visiting teachers in the planning and implementation of M.F.S.U. programs has been suggested, together with seminars for teachers. See also short-term objective 5 concerning post-visits and encouragement from administrators.
3. To develop an understanding of the component parts of the natural and man-made environments, their interactions and man's interdependence with them.	Developing multi-disciplinary environmental programs embracing the areas of science, geology and social studies.	Since the Unit started operations in 1977, each school has received at least two visits. Each circuit has involved approximately 40 per cent of pupils and 30 per cent of teachers. On average, 30 per cent of the formal program time during each camp or day excursion is devoted to activities involving these concepts, although emphasis is variable.
4. To heighten the awareness that man can manipulate certain components of the environment for good or bad. 5. To assist students to develop attitudes of concern environmental quality, and to become responsible members of the world they are shaping and which is shaping them.	Development of formal work programs in conservation as one of the options available to schools. Involving pupils and teachers in activities based on these programs. These concepts are also implicit in many of the other work programs developed and offered by the Unit.	Approximately 30 per cent of schools have opted for programs incorporating formal conservation studies. The work of Gross and Pizzini (1979) suggests that short-term experiences such as those offered by the M.F.S.U. can positively affect the attitudes and perceptions of pupils.
6. To develop feelings of well-being with nature.	Development of day excursions and overnight programs geared to this end. Provision of activities in which pupils can safely enjoy their natural surroundings. Involving pupils in practical camping experiences, together with bushcraft and survival activities.	The work of Gross and Pizzini quoted above suggests that all pupils attending the Unit are likely to be positively affected by the programs. Observations at the Teelba/Beardmore Camp support this view.

Other Outcomes

A valuable outcome of the Unit's operations, not included in the pre-specified objectives, has been the opportunity provided to teachers to see their pupils in a different light. It will be recollected that, when completing the evaluation sheets, almost 60 per cent of teachers recognised that they had benefitted in this way.

More importantly, however, in the context of P.C.A.P.'s overarching goal of equalising educational opportunity, has been the success of the Unit in involving all schools in south-west Queensland in field study activities. This compares favourably with an estimate of 70 to 80 per cent for the proportion of schools on the eastern seaboard which make use of fixed centre facilities.

In regard to Unit programs, all indications are that these are very similar in type and quality to those offered by fixed centres, although there is the added advantage that they are generally tailored to suit the particular locality of each participating school. It is thus reasonable to assume that the benefit derived by country children from an M.F.S.U. visit is at least equal to that derived by students elsewhere from visits to fixed centres.

With regard to concern about the impact of the M.F.S.U. on teachers and school curricula, similar problems have been noted in connection with fixed field study centres in other parts of the State. Although some fixed centres have endeavoured to overcome such problems through increased involvement of visiting teachers in the programming and implementation of activities, their efforts have suffered from the discontinuation of pre-visits, for reasons of economy. If the M.F.S.U. can develop a pattern of operations which retains pre-visits, introduces post-visits, and possibly seminars, and increases the involvement of visiting teachers, its impact should compare favourably with that of other field study centres.

CHAPTER 9

CONCLUSIONS, ALTERNATIVES AND ISSUES

General Conclusions

The following list of conclusions represents an attempt to synthesise and summarise the principal findings presented in foregoing sections of this report:

1. The M.F.S.U. provides a valuable educational experience for pupils through a well-developed range of activities, which have been highly rated by teachers and other educationists.

2. M.F.S.U. programs involve pupils in activities which arouse their interest in environmental studies and from which they benefit socially, particularly those from small schools.

3. Scientific and mathematical activities have been most highly rated by teachers and these have received appropriate emphasis in Unit programs. Camp programs generally have been judged more successful than day excursions.

4. Research findings suggest that even short-term experiences such as those offered by the M.F.S.U. can have a positive effect upon the attitudes and perceptions of visiting pupils.

5. Pre-visit arrangements are generally adequate, although there is some demand for increased communication at the pre-visit stage and for greater involvement of participating teachers in pre-visit planning.

6. Over 50 per cent of visiting teachers considered that the M.F.S.U. programs had inspired them to use the environment more in their teaching and about 60 per cent considered that M.F.S.U. visits had helped them to see their pupils in a different light.

7. There was some concern amongst school principals and administrators that participation in M.F.S.U. programs has had less carry-over into the school curriculum than was originally hoped. A number of strategies for increasing impact have been suggested (see particularly Appenxix H, page 87) and these are discussed on pages 72 and 73.

8. Research findings suggest that, whatever the strategies used, the introduction of environmental studies techniques in schools will continue to be dependent to a large extent upon teacher variables.

9. The frequency of Unit-pupil contact, three days every eighteen to twenty months, as provided by existing itineraries, was judged adequate by most informants, although it could be argued that, in the interests of continuity, more frequent visits might be desirable. In this connection, the widespread demand for post-visits and teacher seminars, described in paragraphs two and three on pages 73 and 77, may be noted.

10. The rotation of operational bases is seen as a useful device for containing travel problems and some further decrease in travel has been proposed through a reduction in the number of camp sites to be used.

11. The annual cost of Unit operations, at the level reviewed in this report, was in the region of $90 000 and the issue of cost effectiveness has encouraged interest in the notion of balancing a reduction in Unit staff by increasing the responsibilities of visiting teachers.

12. There was a general consensus that members of the M.F.S.U. team during 1979 and 1980 were extremely competent and conscientious in the performance of their professional duties, which were seen as both demanding and responsible.

13. Informed opinion suggests that teaching staff appointed to the M.F.S.U. should possess several years successful teaching experience in the school situation, an enthusiasm for outdoor activities and previous experience in environmental education. Continuity of staffing was also judged to be of major importance.

14. The two four-wheel-drive vehicles, the new trailer, the caravan and the range of other equipment were generally satisfactory for Unit requirements, although suitable replacements were needed for the portable toilets.

15. In successfully making field study centre facilities available to schools throughout the South-West Priority Country Area the M.F.S.U. has effectively redressed an area of inequality previously existing in the education of country children.

16. Any decision concerning the future of P.C.A.P. field study provisions in the south-west must necessarily be influenced by the importance attached to the value of environmental education for country children. A further factor will be the nature and intensity of community and other pressures in relation to both the M.F.S.U. and the P.C.A. Program as a whole.

Suggestions and Alternatives

Suggestions concerning the future operations of the Unit fell broadly into two categories: those concerned primarily with overall effectiveness and impact on schools and those concerned primarily with cost-effectiveness. It will be convenient to consider each category separately, drawing attention to inter-relationships where appropriate.

Suggestions Relating to Overall Effectiveness

These were mainly concerned with increasing the Unit's impact on teachers and through them upon the school curriculum:

1. In order to increase the impact of the Unit on the school curriculum, it appears desirable to increase the involvement of participating teachers in the planning and implementation of M.F.S.U. programs. It is suggested that, through increased involvement in planning at the pre-visit stage, participating teachers would be able to prepare certain activities which they would then trial as group leaders during the camp or day excursion. The Unit staff would, of course, act as resource personnel for this purpose. Through increasing teacher awareness of the content of the forthcoming field program, this suggestion should have the added advantage of enabling teachers to act as advance organisers. It is envisaged that having been actually involved in the preparation and implementation of activities with the Unit, there is a greater likelihood that teachers will endeavour to incorporate such strategies in their everyday school work. The suggestions of the environmental consultant (Appendix H) are of particular relevance in this connection.

2. The introduction of follow-up or post-visits is seen as an additional strategy for increasing impact on teachers. It is envisaged that after participating in the Unit program, each school would receive a follow-up visit from a member of the Unit staff to advise and assist teachers in the application and development of strategies suited to the local school environment. During such visits Unit staff might not only discuss the school's approach to environmental education, but also demonstrate some of the local possibilities.

3. Amongst teachers there was considerable demand for the Unit to provide seminars or workshops in environmental education. It was suggested that these might take the form of one-day or overnight camps where teachers would co-operate in workshop activities to devise approaches and materials for later use in their schools. Some teachers were sufficiently enthusiastic to anticipate potential relieving problems by suggesting week-end camps for this purpose. An important consideration relating to seminars would appear to be the experience and expertise of the Unit staff. With a complete change of teaching staff at the end of 1980, it may be some time before the new team feels competent to offer direct instruction to teachers, particularly since neither teacher has specialist qualifications or previous experience in field study work and one is a new graduate. On the other hand, this team has a unique opportunity to demonstrate the value of interest and enthusiasm to teachers hesitant to use an environmental approach through lack of expert knowledge.

4. From senior administrators came the suggestion that they could help the M.S.F.U. program by making their expectations known to teachers. Such support might include some indication not only of the level of involvement expected of teachers during M.F.S.U. visits, but also of the administrator's interest in seeing environmental strategies used in schools. In connection with the role of administrators, it has also been suggested that members of the Unit staff might derive considerable professional benefit if the Unit were to receive formal visits from departmental inspectors.

5. Participating teachers and educational advisors appear in general to be agreed that overnight camps are more effective than day excursions and that small, isolated primary schools benefit most from M.F.S.U. programs. These are probably related outcomes, since the larger schools have mostly opted for the less effective day excursion. This has given rise to the suggestion that perhaps the Unit should increase its concentration upon overnight programs and phase out day excursions, other than in exceptional circumstances, whilst giving priority in its itineraries to the smaller primary schools.

Suggestions Relating to Cost-Effectiveness

These generally related to the level of Unit staffing or to the degree of mobility:

1. One composite proposal incorporated a reduction in Unit staffing to be offset by some decrease in mobility and some increase in the responsibilities of visiting teachers. Thus it was intended that the Unit staff would be reduced from three to two teachers, whilst retaining the position of Unit Support Officer. To compensate for this reduction in staffing it was envisaged that visiting teachers would assume some responsibility for formal group activities during each camp or day excursion. This measure would not only relieve pressure on Unit staff, but would also accord with an earlier proposal to increase the involvement of visiting teachers. By slightly decreasing the number of separate camp sites used, it was intended to reduce travel demands on Unit staff as well as to allow them more opportunity to familiarise themselves with each environment. It was envisaged that the consequent additional travel demands on visiting schools would not exceed those normally experienced by coastal schools when visiting fixed centres and that some collaboration with P.C.A.P. bus committees could help in solving any potential transport problems. In terms of cost-effectiveness, this proposal was aimed at reducing the Unit's staffing and transport costs, whilst also achieving greater visiting teacher involvement.

2. A more extreme version of the first proposal was a drastic reduction in the number of camp sites to some two or three, including perhaps one in the Carnarvons and some increased use of Columboola. This, it was envisaged, would reduce not only transport costs, but also wear and tear on vehicles and equipment, possibly postponing the problem of caravan replacement. Reduced travel demands on teachers would also facilitate a staff reduction similar to that in the previous proposal. It would clearly involve vastly increased travelling for schools, although one solution might be to replace one

of the Unit's four-wheel drive vehicles with a bus, which the support officer would use to collect and return school parties. Whether any overall saving in transport costs would result is problematic, since a double journey would be involved at the start and finish of each camp.

3. The suggestion of one local advisory committee that the present Unit be replaced by a single itinerant teacher would clearly result in a considerable reduction in operating costs, although the precise role of this teacher was not developed. Possibly the role would encompass some combination of the duties of advisory teacher with the sort of approach developed by the P.C.A.P. recreation officer. Presumably the teacher would be supplied with a motor vehicle, such as a station wagon or panel van, suitable for carrying a range of equipment and would visit schools on a regular itinerary. During visits it is envisaged that, through demonstration and advice, the itinerant would assist teachers to develop environmental strategies for use in their everyday teaching programs. Since this is an entirely different concept, it is difficult to assess its viability in the absence of trialling. As an economical way of extending P.C.A.P. field study services into other areas it may well be worthy of further consideration.

4. The final suggestion in this category also involves a different concept since it proposes to replace the existing Unit with a bus, or possibly buses, which schools could use to travel to camping sites of their own choice, in, say, the Carnarvons, or to visit existing field study centres such as that at Columboola. Although some cost saving could be expected, the proposal would appear to have certain marked disadvantages. Firstly, there are no field study centres in the P.C.A.P. region and the nearest, Columboola, is several hundred kilometres from the schools further west. Also, this centre is already heavily utilised by the schools in its immediate catchment area. Secondly, except when using such field study centres, schools would have no access to resource personnel during camps, and, thirdly, this approach would emphasise the notion that field studies involve travelling to some special place rather than something to be undertaken in the local area as an ongoing part of the school curriculum.

Principal Issues

The principal issues facing decision makers would appear to be:

1. For 1981, the Unit staff has been reduced by one teacher, in line with the first suggestion relating to cost-effectiveness. This change, combined with the complete turnover of teaching staff at the end of 1980, suggests the advisability of carefully monitoring:

   - the effect of one less teacher on the work loads of Unit staff and on the efficiency of operations;
   - the degree of success achieved in increasing the responsibilities of visiting teachers; and
   - the effect of any decrease in mobility on visiting schools and on the Unit.

2. The question of whether or not to pursue any of the various suggestions for improving the overall effectiveness of the Unit deserves consideration. Following such consideration, any necessary action would need to be taken to ensure the implementation and monitoring of the proposals adopted.

3. As a part of the ongoing evaluation program, some attempt to assess the impact of changes introduced during 1981 may be considered desirable. There is also the question of whether to proceed with any attempt at measuring changes in pupil attitudes, using the method demonstrated by Gross and Pizzini.

4. Finally, there is the problem that the caravan is wearing out, which will precipitate the need for a decision concerning the long-term future of the Unit. The choice would appear to lie between three principal courses of action:

- to replace the caravan, at an estimated cost of $12 000, and continue the present style of operations;

- to trial one of the less costly alternatives; or

- to discontinue the project completely, thus releasing funds for the trialling of new P.C.A.P. initiatives.

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APPENDIX A

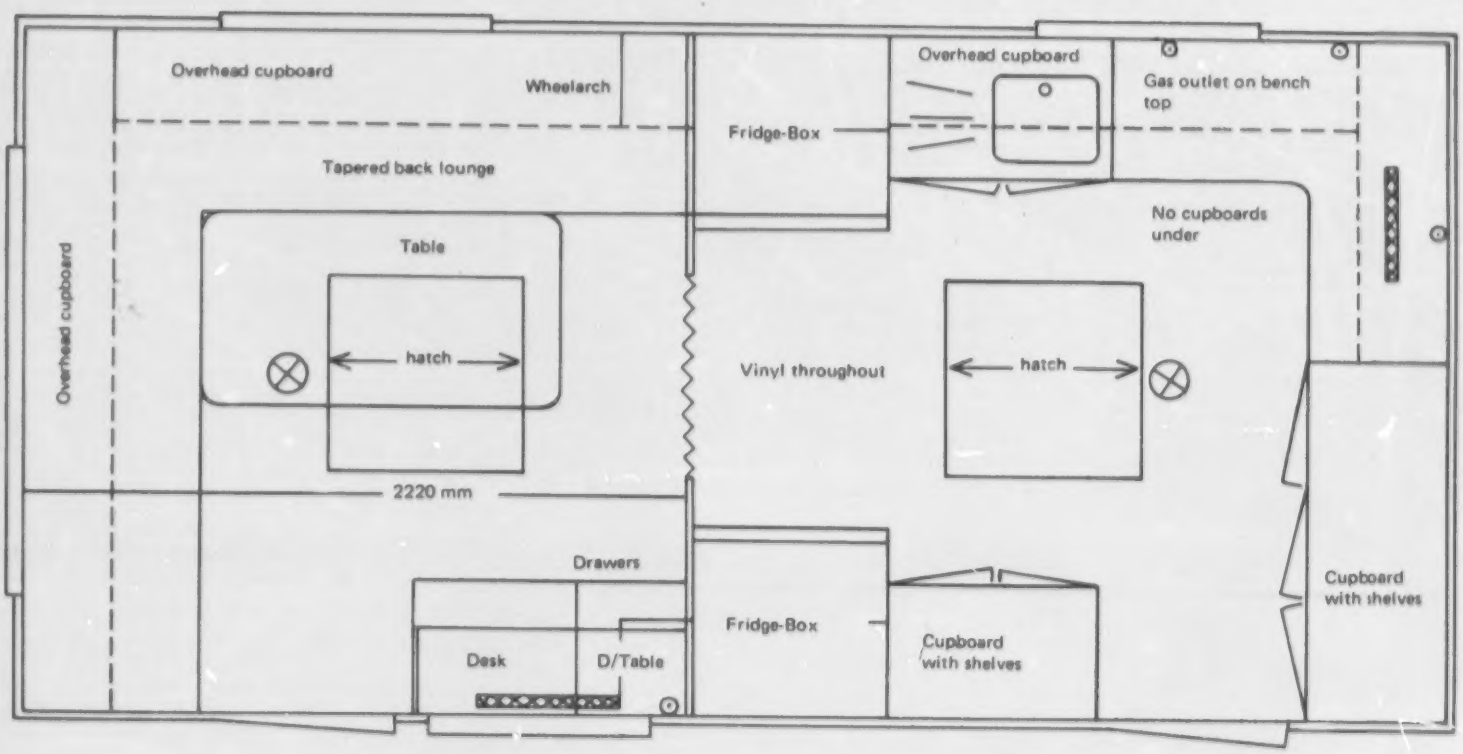
SCHOOLS IN THE SOUTH-WEST PRIORITY COUNTRY AREA (Including Tambo Shire) – August 1980

TYPE	SCHOOL	ENROLMENT			STAFFING		
		PRIM.	SEC.	TOTAL	PRIM.	SEC.	TOTAL
State schools							
High	Charleville		245	245		22	22
	Roma		422	422		37	37
	St George		208	208		19	19
Primary/ Secondary	Cunnamulla	228	123	351	14	10	24
	Dirranbandi	132	35	167	9	5	14
	Injune	112	29	141	6	5	11
	Mitchell	176	112	288	9	8	17
	Surat	118	27	145	8	5	13
	Tambo	118	28	146	6	4	10
Primary	Amby	31		31	2		2
	Augathella	47		47	3		3
	Begonia	23		23	1		1
	Bollon	65		65	4		4
	Bymount East	31		31	2		2
	Charleville	392		392	18		18
	Dunkeld	13		13	1		1
	Eromanga	5		5	1		1
	Eulo	17		17	1		1
	Hebel	7		7	1		1
	Hungerford	6		6	1		1
	Morven	46		46	2		2
	Mt Abundance	18		18	1		1
	Muckadilla	16		16	1		1
	Mungallala	37		37	2		2
	Quilpie	75	15	90	5		5
	Roma	481		481	25		25
	Roma Junior	349		349	19		19
	St George	344		344	18		18
	Teelba	7		7	1		1
	Thallon	49		49	3		3
	Thargomindah	46	1	47	3		3
	Wyandra	43		43	2		2
	Wycombe	15		15	1		1
	Yuleba Creek	15		15	1		1
Sub-totals	34 schools	3062	1245	4307	171	115	286

TYPE	SCHOOL	ENROLMENT			STAFFING		
		PRIM.	SEC.	TOTAL	PRIM.	SEC.	TOTAL
Catholic schools							
High	Roma		92	92		6.5	6.5
Primary/ Secondary	Charleville	190	26	216	7	4	11
Primary	Augathella	17		17	1		1
	Cunnamulla	112		112	5.5		5.5
	Mitchell	86		86	4.8		4.8
	Quilpie	83		83	3		3
	Roma	260		260	10		10
	St George	191		191	7.4		7.4
Sub-totals	8 schools	939	118	1057	38.7	10.5	49.2
Grand-totals	42 schools	4001	1363	5364	239.7	125.5	335.2

APPENDIX B

PLAN OF THE M.F.S.U. CARAVAN



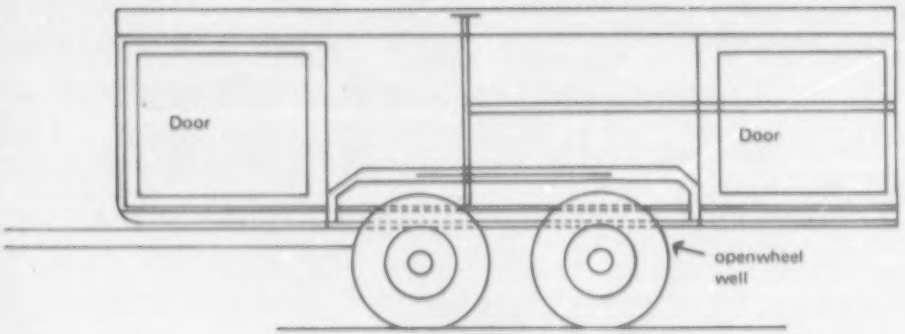
Chassis length 4900 mm

Legend

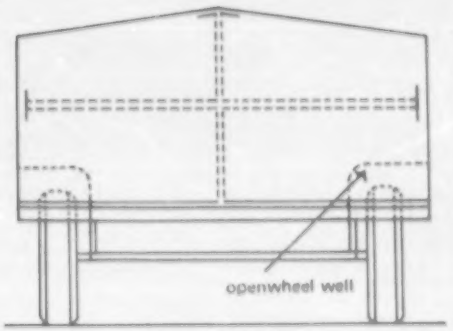
- Power Points
- Ceiling lights
- Fluorescent lights
- Overhead cupboard

APPENDIX C

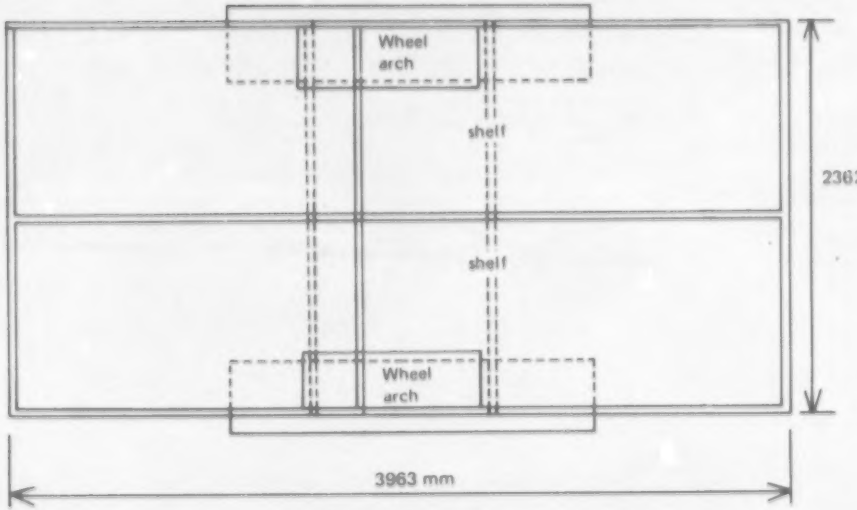
PLAN OF THE M.F.S.U. TRAILER



Side Elevation



Erd Elevation



Plan

Material

Wall Frame: 25 x 85 mm R.H.S.

Chassis: 63 x 25 mm Channel
100 x 50 mm R.H.S.

APPENDIX D

CAMP ACCEPTANCE FORM

MOBILE FIELD STUDY CENTRE

School:.....Telephone:.....

To be returned to Mobile Field Stucy Centre c/o .....

.....

Definitely before ...../...../.....

TYPE OF PROGRAM	Please Note
♦ 3 - single day excursions ♦ I - single day excursion I - two day camp ♦ I - three day camp	Schools may choose from the following possibilities (a) Single day excursions (b) A two day camp and single day excursion (c) A three day camp (High Schools Only)
Dates__/__/__ to __/__/__	
Numbers of Students Day Excursion	Details of Staff Attending Camps and Excursions
Yr I 2 3 4 5 6 7 8 9 10 11 12	
No	
Students attending Camp	
Yr I 2 3 4 5 6 7 8 9 10 11 12	
No	

♦ Delete if not required

Additional comments or requests

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APPENDIX E

PRIORITY COUNTRY AREA PROGRAM
MOBILE FIELD STUDY UNITY
WORK PROGRAMS

The Unit's staff has produced a series of multi-disciplinary work programs whichcan be adapted to most of the environment used by the Unit for its activities. Visiting teachers are asked to select from the following list and study topics they feel would be suitable for inclusion in the camp or day excursion's program.

Worksheets can be produced to cater for any special needs or subject areas the teachers wish to be covered. Teachers are encouraged to consult the staff on this matter.

Teachers are also encouraged to use their own programs, thus using the co-operation and assistance of the Unit's Staff and facilities.

PLEASE TICK THE ACTIVITIES YOU WOULD LIKE TO INCLUDE IN THE PROGRAM

SCIENCE

ANIMALS: LOWER PRIMARY

__Making Tracks
__Animal Home
__Living and Non-Living Things (Does It Live?)
__Ants (A Social Animal)
__Insects
__Spiders

ANIMALS: UPPER PRIMARY, LOWER SECONDARY

__Birds (Birdwatch, Sketching)
__Insects
__Freshwater Habitat (Pond Study)
__Habitat Assessment (Secondary only)
__Habitat Studies and Animal Relationships
__Termites, Ants, Bees (Social Animals)
__Leaf Litter Study and Identification
__Animal Ramble

PLANTS: LOWER PRIMARY

__Leaf Prints
__Plants - General
__A Tree Activity
__Scavenger Hunt

PLANTS: UPPER PRIMARY, LOWER SECONDARY

__Comparison between different Environments
__Green Plant Factory
__Rainforest
__Tree Study Activity
__Leaf and Flower Structure

ASTRONOMY

__General (Lower Primary)

__General (Upper Primary, Lower Secondary)

ROCKS, SOILS AND MINERALS: UPPER PRIMARY, LOWER SECONDARY

__Erosion and Weathering

__Rock Types and Uses (Lower Secondary)

__Soil Studies and Profile

__How Soil is Formed

__Rocks and Pebbles

__Weather

SOCIAL STUDIES (Upper Primary, Lower Secondary)

__Litter Survey

__Traffic Survey

__Town Planning

LANGUAGE ARTS (All Years)

__Use of the Senses

__Poetry

__Drama (Role Playing)

MATHEMATICS (Upper Primary, Lower Secondary)

__Distance, Length of Pace under various conditions,
Speed/Time Relationships (Estimation),
Area Perimeter

__Height (Estimation by various techniques)

__Compass Activities

__Circles (Cicumference, circumcentre)

GENERAL ACTIVITIES (All Years)

__Environmental Treasure Hunt

__Orienteering

__Abseilling

__Swimming

__First-Aid (resuscitation)

__Conservation Crossword

__Generation Gap

__Group Initiative Exercises

__Lost in the Bush

__Desert Survival

__Wilderness Survival

__Lost at Sea

__Co-operation

EVENING ACTIVITIES FOR CAMPING

__Spotlighting

__Astronomy

__Social Games

__Campfire (Singing, drama)

__Mock Olympics

APPENDIX F

MOBILE FIELD STUDY CENTRE
STAFF EVALUATION SHEET

Name:.....School:.....Date:..../..../....

Camp/Day Excursion

1. Were pre-visit/pre-camp communication and information sheets adequate?
   If not, can you make suggestions for improvement?

   _____

   _____

   _____

2. One of our aims is to provide new and different learning experiences.
   Rate the success level of the program.

   0 1 2 3 4 5 6 7 8 9 10

3. Did you see your students in a 'different light' in this different situation?
   Explain: _____

   _____

4. Which activity was most successful?

   _____

5. What did you like least about the programs?

   _____

6. Suggestions/comments on program and unit and possible changes or suggestions for improvement.

   _____

   _____

   _____

7. Do you think that this program has inspired you to use the 'environment' more in your teaching?

   Comment: _____

   _____

APPENDIX G

A SAMPLE CAMP PROGRAM
PRIORITY COUNTRY AREA PROGRAMME
MOBILE FIELD STUDY CENTRE

A sample normal school camp program is set out below.

3 DAY CAMP

Day I

9.00 - 9.30	School travel and arrival in camp. Introductory talk about camp rules, work program.
10.00	Set-up tents and demonstrations - tents bar-b-ques chemical toilets hot water supply.
	ACTIVITY I
12.00	Lunch
1.00	ACTIVITY 2
	break
3.00	ACTIVITY 3
5.00	Food preparation, evening meal, clean-up.
7.00 - 9.00	Night Activity e.g. Astronomy
9.30	Lights out

DAY 2

6.00	Rise - Early morning bird watch
7.00	Food preparation, breakfast, clean-up
9.00	ACTIVITY I
10.30	ACTIVITY 2
12.00	Lunch
1.00	ACTIVITY 3
	break
3.00	ACTIVITY 4
5.00	Food Preparation, evening meal, clean-up
7.00 - 9.00	Night Activity
9.30	Lights out

3 DAY CAMP continued

DAY 3

6.00	Rise and pack personal gear
7.00	Food preparation, breakfast, clean-up
9.00	ACTIVITY I
11.00	Pack up tents
12.00	Lunch
1.00	ACTIVITY 2
2.00 - 2.30	Load buses, cars, depart for school
3.00	Arrive at school

NOTE: 2 day camps are usually a combination of Day I and Day 3 but with longer activity times

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DAY EXCURSIONS

9.00	School
9.15	Arrive at activity area
	Introductory Talks - rules
	- day's program
9.30	ACTIVITY I
10.45	Morning Break
11.00	ACTIVITY 2
12.15	Lunch
1.15	ACTIVITY 3
2.30	Depart for school
3.00	Arrive at school

NOTE: The above Timetables are only a general guideline and may vary with the activities and proximity of the activity area to the school grounds.

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APPENDIX H

CONSULTANT'S OBSERVATIONS OF MOBILE FIELD STUDY UNIT

Introduction

The activities of the Priority Country Area Program Mobile Field Study Unit (M.F.S.U.) were observed during the third week of September 1980. At this time, officers of the M.F.S.U. were conducting a two-night camp with the teachers and students of Teelba and Beardmore State Primary Schools. Both schools are small (less than 20 students), isolated, and seldom have contact with other schools and students or with each other.

Scope of the Observation

Observations were made which were intended to gain insight into the field activities and processes undertaken by the M.F.S.U. and the degree to which these activities and processes fulfilled the stated purposes of the unit.

The purposes of the unit have been stated as:

- to assist in pre-school, primary and secondary schools to use their local areas as part of their program in environmental education;
- to assist students to develop attitudes of positive concern for environmental quality, wise resource usage and an understanding of the natural, modified and built environments.

Activities

A wide range of activities were undertaken over the period of the camp. Although some activities dealing with the development of independence and self-confidence (e.g. setting up tents; cooking) are considered important, they will not be considered here. Concentration will be upon activities directly related to the normal school processes.

Activities ranged over several aspects of the curriculum including maths, languages, science, conservation and orienteering. A summary of the major activities is given below:

- Outdoor maths - use of string and tent pegs to determine the radius and diameter of a circle;
- Orienteering - introduction to the use of the compass and practice in following a compass course;
- Termite study - observation and investigation of termites, their environment and habits;
- Astronomy - night observation of stars and planets;
- Bird watching - early morning observation and discussion relating to the type, habits and ecology of the resident bird population;
- Freshwater activity - investigation of the diversity of life forms to be found in the ponds formed by the property weir;
- Animal poems - poems written by the students using the characteristics of animals as subject matter;

- Tree study - investigation of local trees, their type, leaf forms, bark and ecology;
- Conservation - general discussion of principles of conservation and land use management using readily available examples;
- Basic first aid; and
- Learning to tie knots.

Each of the activities undertaken with students by the unit members were those which could be applied to most geographic locations. Many were also relatively standard classroom or field activities. The major difference between these activities and their counterparts in the classroom was the method used for implementation. In this case the materials and examples for the activities came from a local site, easily accessible to the school. Each of the activities could be easily modified by the teachers for any subsequent use.

As an example, the following sequence of events occurred during the freshwater activity:

- The students were divided into two groups according to age or Year and not school (one group to do the activity later).
- An introductory discussion gave the students some background into the basics of freshwater ecology and the types of life forms which might be found.
- Students were then shown the area to be investigated. Students volunteered comments such as, 'Nothing could live in that'. (The pond was heavily overgrown with floating algae.)
  'I've come here before, there's nothing in there.'
- After a brief demonstration of collection techniques, students were then encouraged to collect as many living things as possible.
- The students proceeded to dip, strain and bottle a wide variety of aquatic life, most of which could be identified from their worksheets.
- Concluding discussions with the students revealed that they were somewhat amazed by the variety of living things that could be found in this so-called 'dead' pond.
- Unit staff then concluded with a brief discussion of the ecological relationships between the life forms and the general ecology of the pond.

This activity was typical of the method of presentation of most of the activities presented by the M.F.S.U. staff. The only major variation was in the degree of structure imposed upon the various other activities.

The major contribution of this activity, and others like it, was in its direct, personal relevance to the students. Had the activity been undertaken at a more distant site, students may well have continued with the initial impression of their 'dead' pond. It is often difficult for students, and sometimes teachers, to transfer the experiences gained in an unfamiliar setting to a setting which is more familiar. This is particularly true when the overt characteristics of distant and local sites are markedly different.

Involvement of Teaching Staff

Teachers from the two schools were involved to varying degrees in the activities conducted by M.F.S.U. staff. Initially teachers functioned primarily as observers with little active participation in the activities or

in providing direct assistance to M.F.S.U. staff. However, over the full period of the camp there was a distinct rate of progress toward teacher involvement. This progress proceeded from the first tentative attempts at answering students' questions through to direct assistance to M.F.S.U. staff and active participation, along with students, in some unfamiliar activities.

Discussions with teachers revealed some of the reasons for this initial hesitancy at involvement. Teachers indicated that they feel that the M.F.S.U. staff were 'specialists' in these type of activities and were therefore best qualified to provide the maximum benefits to the students. M.F.S.U. staff, however disagreed with the 'specialist' title awarded them indicating that any teacher could provide similar benefits to students. This author's inclination is to agree quite strongly with M.F.S.U. staff.*

One of the major reasons that teachers feel that M.F.S.U. staff are 'specialists', is the units familiarity, through experience, with the more technical aspects of the activities (e.g. names of trees; birds; and similar). However this knowledge is not at all essential to the successful implementation of the programs but is simply a bonus that unit staff can provide. Artificial names or descriptive terms can be used just as effectively as the 'scientific' names.

M.F.S.U. staff, and teachers, agree that relating concrete, observable examples to abstract concepts is of great assistance to students' comprehension and retention. The general environment of any school is a bountiful source of these examples. Effective utilisation of these resources involves a thorough assessment of the potential of the local area. This assessment does not require a familiarity with the technical descriptions of these resources, but rather an awareness of their existence.

One of the major impacts of the camp was the increased awareness demonstrated by the teachers of ways in which they could utilise their local environment. The M.F.S.U. staff had effectively demonstrated that familiar, ordinary items in the school environment could be easily used to augment normal classroom activities with the resulting benefits to students. Both teachers indicated that they intended to follow-up many of the activities undertaken by M.F.S.U. staff. As an example, one of the teachers indicated that she would bring her students back to the pond to collect materials to be used in setting up an aquarium in the classroom. This was greeted with great enthusiasm by the students.

Involvement of Students

Over the duration of the camp there was a distinct increase in the development of students skills in 'critical' observation (i.e. seeing rather than looking) as well as an increase in social teamwork and confident personal interaction.

At the beginning of the camp, students tended to observe their environment in a very general sense (e.g. trees, birds, green 'gunk'). By the end of the camp students were more critical in their observations (e.g. water feeding birds with long legs and redbills) and actively questioned relationships. Several students indicated that although many of the things around them had been 'noticed' before they really hadn't 'looked' at them.

Similar changes in personal development were observed. At the onset of the camp the students tended to be quiet and shy, staying pretty much with their own school group. By the end of the camp, students were organising themselves into peer groups, not aligned with their school group, and were actively organising activities for themselves.

* This is not meant to imply that a certain degree of specialist knowledge is not only an advantage for M.F.S.U. staff, but also a necessity. One of the primary reasons for the M.F.S.U.'s ability to effectively orientate and encourage teachers in the use of the outdoors as a medium, is their combined knowledge in outdoor education and their familiarity with the classroom situation. This combination of orientation and practical experience is essential to the successful operation of such a program. This degree of specialist skill is not a necessity for classroom teachers, however.

The students apparent attitude towards the activities also underwent an evolutionary process. Initially students were content to be passive participants, listening to directions and following worksheet instructions. By the latter stages of the camp most students showed a greater tendency towards active participation and a willingness to explore the more open pathways provided by the activities.

General Comments

On the whole, the camp experience provided by the Mobile Field Study Unit resulted in positive benefits, for both teachers and students, which may have been difficult to obtain under other circumstances. It is questionable whether the appreciation and awareness of the local environment gained by the students could have been obtained if a more distant venue was utilised. Although teachers could have gained experience in the techniques of teaching out-of-doors at any site, the knowledge of their own environment and its potential resources gained through working with M.F.S.U. staff in the local environment, would have to be considered equally important.

Recommendations

Minor recommendations and suggestions pertaining to particular activities were discussed with M.F.S.U. staff at the time of the visit and need not be considered here. There is one major recommendation which could be made however.

One of the major obstacles to classroom teachers actively adapting the techniques demonstrated by the unit and subsequently employing these techniques on a more routine basis, is the widely held belief that unit staff are specialists and that the skills required are related to this specialist knowledge.

This hesitancy on the part of teachers could be overcome to a great extent by increasing the participation and involvement of teachers in the planning phases of the units activities. M.F.S.U. staff do not ordinarily involve teachers in the pre-planning of camp activities beyond the orientation activities undertaken before the camp. Although this has been necessitated to a large extent by a shortage of time and geographic factors, it has resulted in teachers being aware of *what* was going to happen but not *why*.

It is therefore seen as desirable that M.F.S.U. staff make every effort to involve teachers in discussions which elaborate upon:

. the activity to be undertaken;

. why the activity was chosen;

. how the activity relates to, or, why it is suited to the particular environment; and

. any special skills, or lack of them, which is required to conduct the activity.

These discussions need not be lengthy nor complex but merely explanatory. This would tend to increase the pedagogical intercourse between unit staff and teachers and therefore assist in reducing the 'specialist image' often attributed to unit staff.

R. Skidmore

Mr R. Skidmore is a biology graduate with eleven years classroom teaching experience in the science/biology area, including six years in various aspects of environmental education. He spent three years as a member of the Environmental Advisory Team of the Department of Education, Queensland and has previously served on co-ordinating committees for environmental education in the U.S.A. He is currently seconded to the Research Branch of the Department of Education in Brisbane.

APPENDIX I

MFSU ACTIVITY SHEETS

OUTDOOR MATHS

CIRCLE

Development of pre-formulae for circumference.

i.e. c = 6 r relationship - estimation.

Materials: 20 metres string, pencil.

Instructions: Students Work in pairs.

1. One student (A) stays still, holding end of string. Other student (B) walks six paces away. When string is taut, mark the spot, then B must walk in a circle until back at starting point.

2. Guess how many paces it will take for B to return to starting point. Record your guess on the table below.

3. Perform the experiment and record the result. Was your guess too large or too small?

4. Repeat the process using different lengths away from the centre (radii).

RADIUS	GUESS	ACCURATE
6 paces		
10 paces		
4 paces		
12 paces		
20 paces		

5. Are your guesses becoming more accurate?
6. Is there a relationship between distance around circle (circumference) and distance from centre (radius)?_____
7. About how many times bigger is the distance around the circle, than the distance out from the centre? _____

WHAT IS A TERMITE MOUND?

LOOK at the termites' mound.

FEEL how strong the outside is.

SCRATCH some of the outside material off.

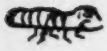
DOES the inside material look like this?

CHECK the difference between the colours, texture, and weight of the materials.

WHAT is this material?

Why is the inside full of holes?

winged termite



soldier

LOOK at the termite (use the hand lens).

MEASURE it.

DRAW IT.

worker

WHAT colour is it?

DO all the termites look the same?

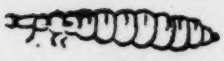
WHAT does the termite eat?

WHY are all the termites inside and none outside?

WHAT might eat the termite?

HOW do termites respond to light?

WHY do termites build mounds?

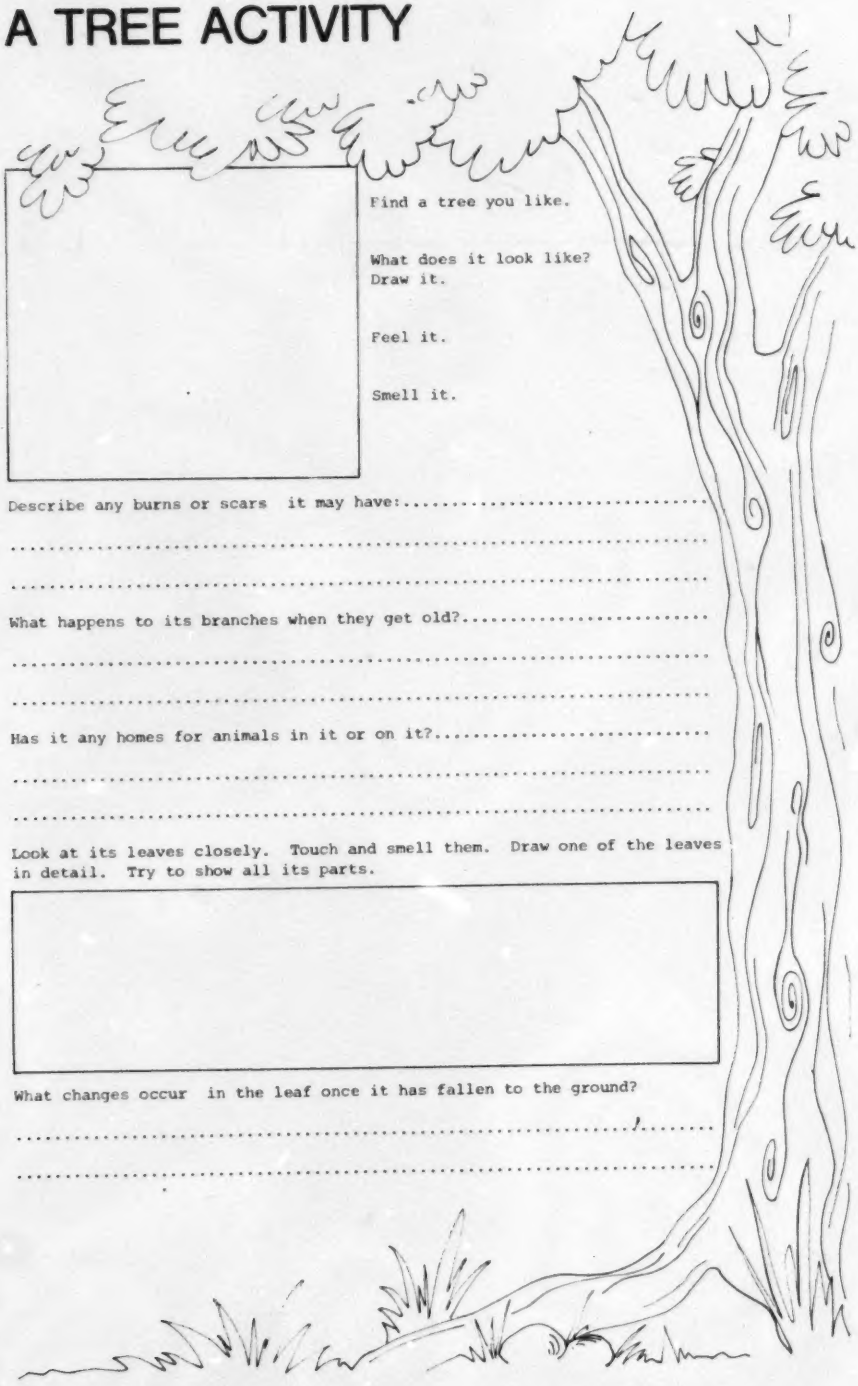


queen

Exploring a Termite Mound

VAILABLE

A TREE ACTIVITY



Find a tree you like.

What does it look like?
Draw it.

Feel it.

Smell it.

Describe any burns or scars it may have:.....

.....

.....

What happens to its branches when they get old?.....

.....

.....

Has it any homes for animals in it or on it?.....

.....

.....

Look at its leaves closely. Touch and smell them. Draw one of the leaves in detail. Try to show all its parts.

What changes occur in the leaf once it has fallen to the ground?

.....

.....

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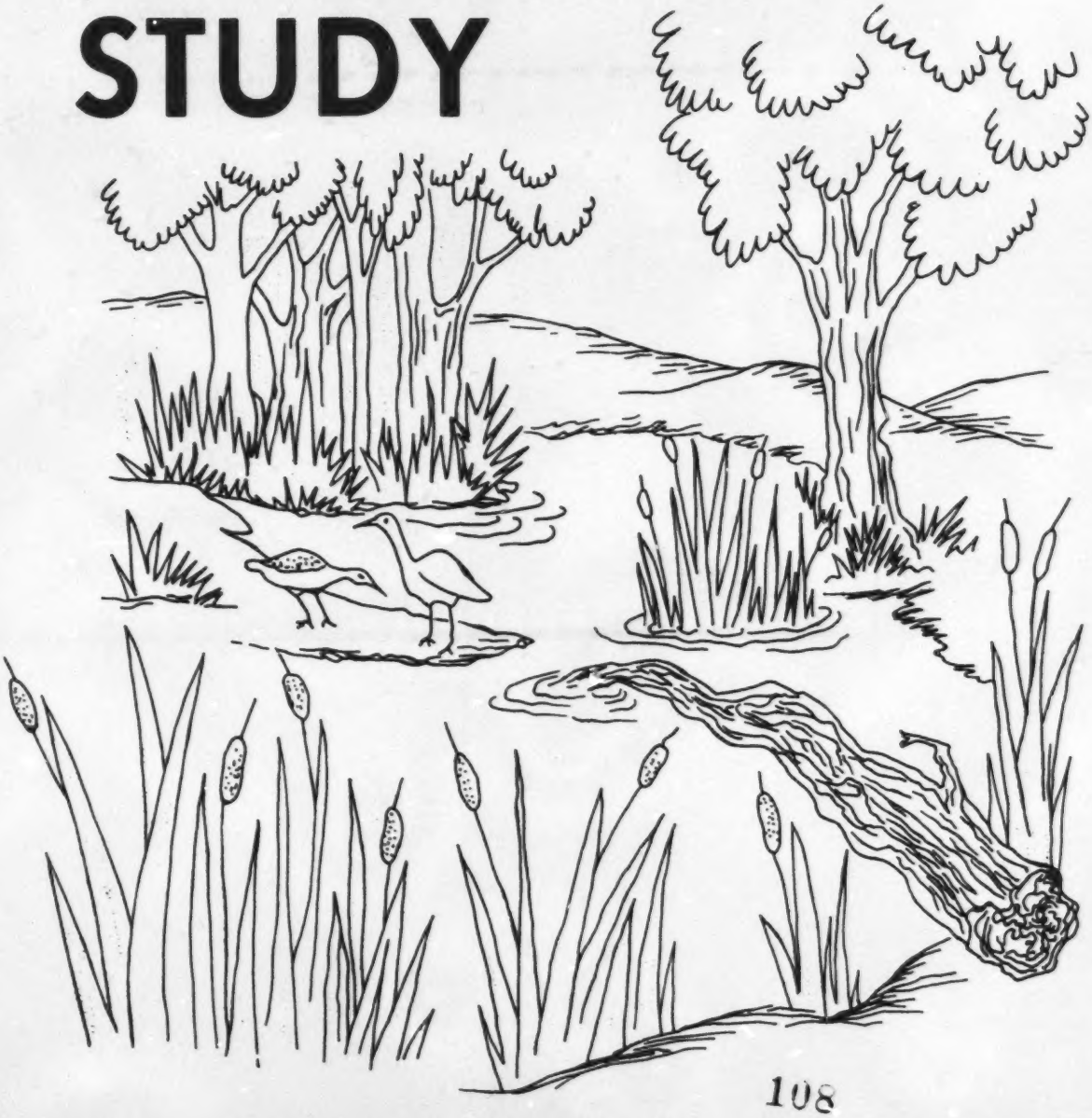
What does your tree and other trees do for you?.....

.....

.....

SIT DOWN QUIETLY AND IMAGINE YOU ARE YOUR TREE WHEN IT WAS JUST A SEED.
Imagine you are growing. Describe all the things that happen to you as you grow to your present size.
Do you get visits from animals and insects?
What happens to you in the rain or a storm?

A FRESHWATER STUDY



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PHYSICAL CONDITIONS

WATER MOVEMENT
WATER DEPTH
WATER CLARITY
WATER CLARITY
BOTTOM CONDITION
WATER TEMPERATURE (A) Shallow Water (B) Deep Water
AIR MOVEMENT
EVIDENCE OF FLOODING
LIGHT INTENSITY
FLOATING PLANTS
PARTLY SUBMERGED PLANTS
TOTALLY SUBMERGED PLANTS

1. Sample the population of living things by taking sweeps of the net in the deep water, in the shallows and amongst the reeds.

2. Place the living things found, in the collection bottles.

3. Keep the bottle in a cool place.

4. Use Field Guides to identify your findings.

5. Record your findings on the chart on the next page.

6. Return all animals to the water as soon as you are finished.

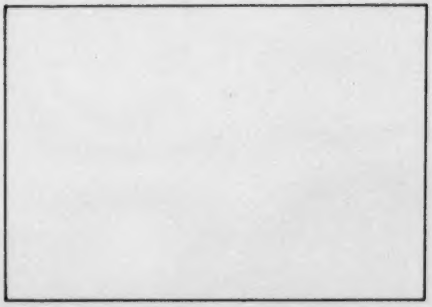
MATERIALS REQUIRED

Nets
Collection containers
Pencils and clipboards
Field guides
Hand lenses
Metre ruler

OBSERVE THE ACTIVITIES OF THE LIVING THINGS PRESENT.....

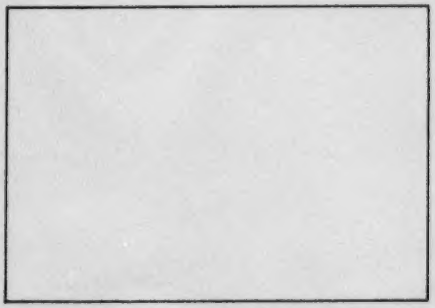
1. An example of two living things interacting is; (eg. Bird eating fish)
   .....
   .....
2. The.....
   .....
   is an example of living things with a specialised structure which aids its survival in this environment. (eg. Water Strider with pads on its feet to enable it to walk on water.)

3. Draw a living thing which you think makes food in this pond. e.g. a plant.



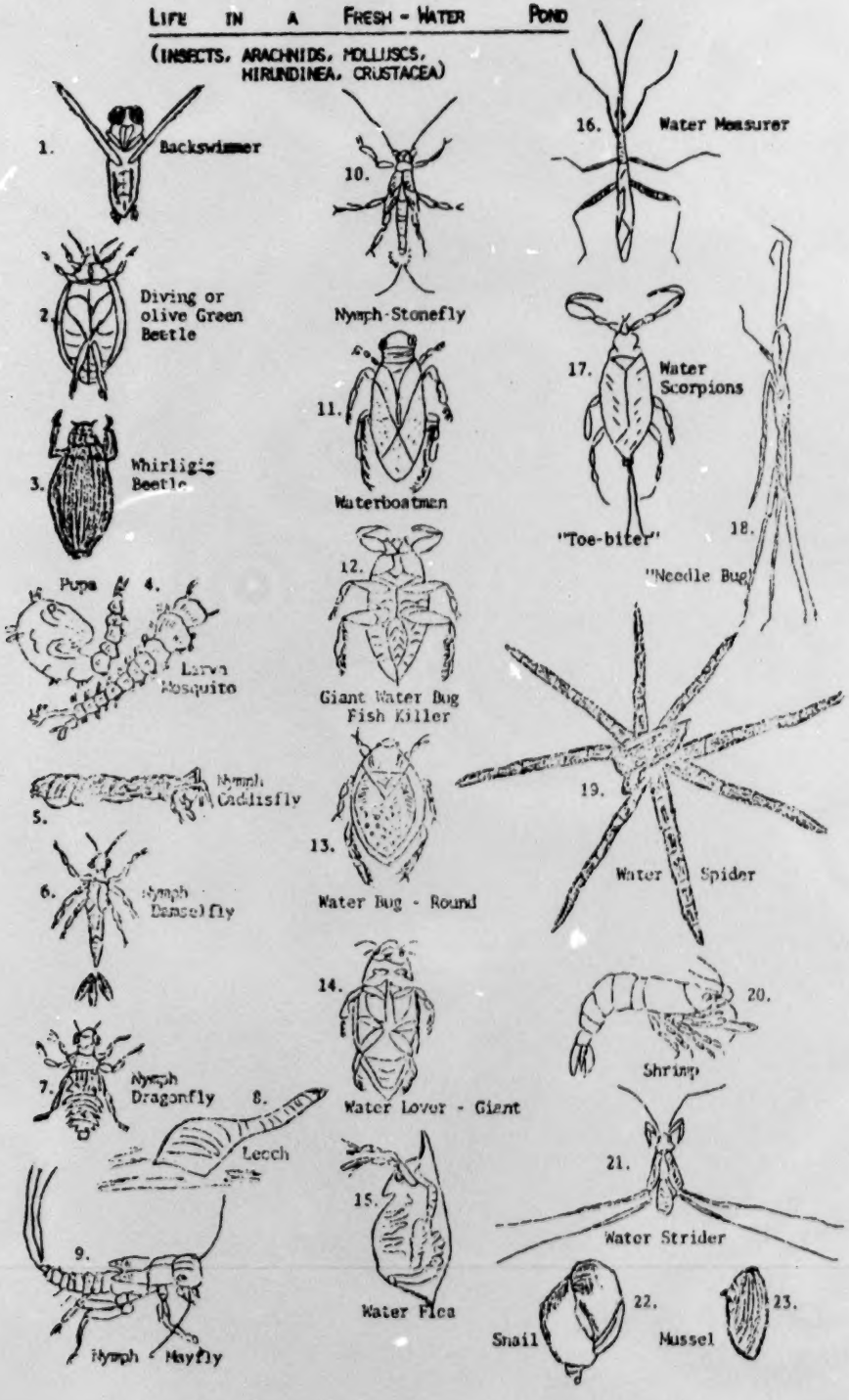
4. Draw an animal which you think eats other animals in this pond. e.g.: frog

5. Draw an animal which eats plants in this pond.
   e.g.: turtle



LIFE IN A FRESH - WATER POND

(INSECTS, ARACHNIDS, MOLLUSCS, HIRUDINEA, CRUSTACEA)



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THE FRESH WATER HABITAT

Equipment required Dip nets
Collecting jars
Hand lenses
Clipboard and pen

Aim The aim of this study is observe the animals living in this habitat and to fill in the colums of the next sheets from our observations. When we have completed this sheet, we will be able to construct a *Food Web* for this habitat.

Name of the animal You should be able to identify each animal from your sheets. If not, ask your teacher.

Where was it found? To make this easier for you, we have divided the habitat into four areas.

(i) On, or just under the surface;
(ii) The upper layers of the water;
(iii) The lower layers of the water; and
(iv) On the mud, stones, at the bottom.

What was it doing? You will need sharp eyes for this one. Where possible write down if the animal was swimming, skating on the surface, feeding, breathing, or such like.

What does it eat? This question can often be answered by carefully looking at the animal you have caught. Is it fast enough to catch and eat the swimming animals? Is it designed for grazing on the algae at the bottom? Was it feeding on anything when you caught it?

What other living things eat it? You will have to think hard about this one. Don't forget that your answers may include animals you may not be able to see right now, such as birds, larger fish, or frogs.

THE FOOD WEB

Don't do this until you have finished the work over the page. At the bottom of every food web are the green plants. These are called *Producers*, because they produce their own food from minerals in the soil and air, and sunlight. If you found any in your freshwater habitat, write the word "plants" at the bottom of the page.

Now, above the plants, we are going to write the names of all the animals that eat the plants. These are called *First Order Consumers*.

Above this line, we are going to write the names of all the animals that eat the first order consumers. These are called *Second Order Consumers*.

Above this line we will put the *Third Order Consumers*. What will they eat?

Can you think of any *Fourth Order Consumers* to write above this line?

Your food web is nearly finished now. All we have to do is to draw lines joining each animal to all the living things it eats.

What place does man have in this food web? .....
.....
.....
.....
.....

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Mobile Field Study Centre

An Animal Poem

1. Write down something which you saw today which interested you. Maybe you liked it, maybe you didn't.

2. Write down two adjectives (describing words) about the animal you are thinking of.

3. Beneath that, write three verbs (action or doing words) about the object. These words might tell of changes taking place.

4. On the next line write a short phrase of four words, that tells how the animal affects the environment. Describe its value, its job or its usefullness or any other thought about the object.

5. Under that, write one word that sums up everything about the object. This may be another descriptive word.

6. Go back to the beginning and add a word title that is related to the last word.

---

1. .....

2. .....

3. .....

4. .....

5. .....

HANDY ANIMAL

Ants
small, crawly
crept, burrowed, fought
cleaned up peoples rubbish
helpful critters

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Comparative Soil Profile

lengthy
shading
digging
grinding
turning
moving

Soil provides a base
essential

Draw Your animal